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Associated Chamber of Commerce

(P)

ANNUAL REPORT
OF THE
TRADE AND COMMERCE
OF
CLEVELAND.

PREPARED UNDER THE DIRECTION

OF THE
CLEVELAND BOARD OF TRADE.

Issued December 1st, 1892.

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CLEVELAND, O.:
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1892.

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I.—HISTORICAL AND DESCRIPTIVE.

SUMMARY OF CLEVELAND'S HISTORY—LOCATION WITH
REFERENCE TO SOURCES OF SUPPLY OF RAW MATERI-
ALS, LAKE AND RAIL TRANSPORTATION, MARKETS,
ETC.—ATTRACTIVE FEATURES—PARKS, AVE-
NUES, MONUMENTS, CHURCHES, EDUCA-
TIONAL INSTITUTIONS, ETC.—HEALTH
STATISTICS, TEMPERATURE, ETC.

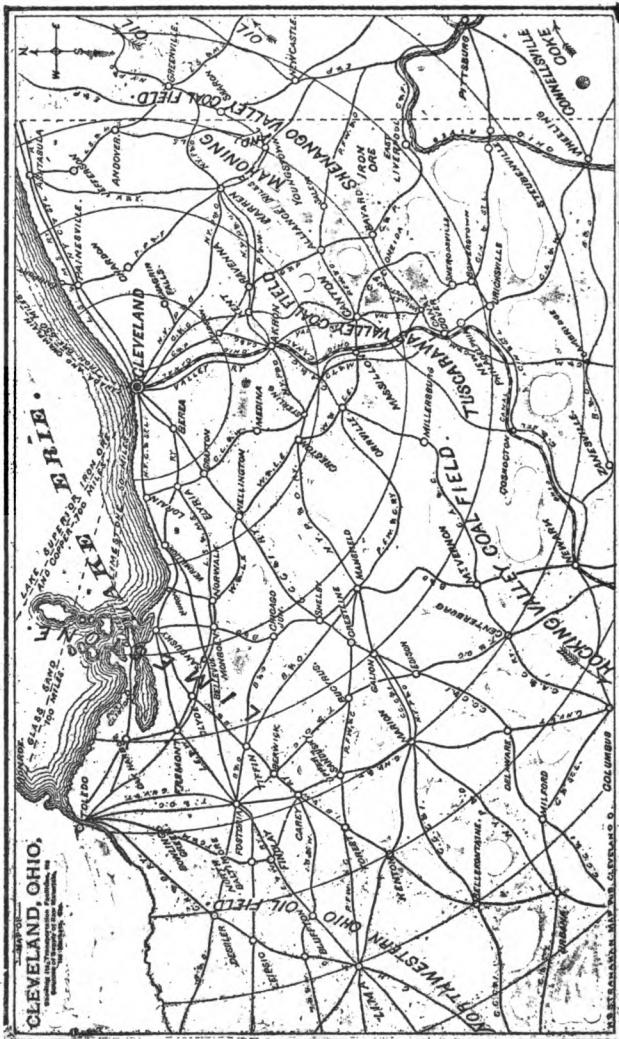
It is not the intention here to more than refer to some of the leading features in the advancement of the city of Cleveland. In 1755, a settlement was made six miles from the mouth of the Cuyahoga River. Between that time and 1783, through the maneuvers of the French and English, this territory was annexed to Canada and Quebec at different times, but by the treaty of Paris (1783), Ohio territory was included in the United States. In 1786, Connecticut gave up all the territory she had in the west except the Western Reserve, through the sale of which that state planned to obtain funds for public school purposes. From this reserve of four million acres and surrounding country Cleveland has grown. In 1789, a trading post was established on the Cuyahoga, but the first transaction that promised the development of a city was the sale of 3,000,000 acres of the Western Reserve by the State of Connecticut to the Connecticut Land Company, at 40 cents an acre. This was not a speculative purchase. It was made by young New Englanders who in the most part came and took possession of their western domain. The names of these original purchasers are perpetuated by another gener-

ation in some of the most extensive business concerns in the city. The first survey was made in 1796 and thereafter the place at the mouth of the Cuyahoga was known as Cleveland. It was made a port of entry and a post-office was established in 1805, and four years later its supremacy over rival settlements was established by securing the county seat. In 1814, the village was incorporated, but two years after the total valuation of assessable property was only \$21,605. Events that marked the year 1818 was the establishing of the first newspaper and the arrival of the *Walk-in-the-Water*, the first steamboat on the great lakes.

The commencement of the Ohio canal in 1825 and the improvement of the harbor by building a \$5,000 pier, extending 600 feet into the lake, marked the second era of Cleveland's growth, for while most cities owe their prosperity to railroads, Cleveland is what she is to-day mainly from her location as to waterways. In 1827, the canal was opened to Akron and five years later to the Ohio River. This canal and the outlet by lake gave this city an advantage over much of the country east that had been settled earlier. City charters were given Cleveland and Ohio City in 1836, and in 1854 they were consolidated, both cities four years previous having a combined population of 20,844. The Cleveland, Columbus & Cincinnati Railroad was opened in 1851. The same year, \$50,000 was borrowed for market purposes and school buildings. With this appropriation began the great advantages in educational facilities afforded by the city, although three school buildings had been erected as early as 1838. In 1846, the first High School in the United States was established here. Three state banks were established in 1845, and four years later a gas plant was built and telegraph communication established. The East Cleveland street railroad was chartered in 1860 and the West Side road three years later, at which time the National Bank of Commerce commenced business, and the Atlantic & Great Western road was opened for traffic.

About this time the growth of manufacturing may be noticed, marking the third and greatest era in the city's

MAP OF CLEVELAND, O., SHOWING ITS TRANSPORTATION FACILITIES ITS SOURCES OF SUPPLY
OF RAW MATERIALS, ETC.



DISTANCE BETWEEN CIRCLES, 20 MILES.

prosperity. The opening of the Lake Superior ore mines and the tapping of oil deposits in Pennsylvania both contributed to this growth. Wooden ship building began to be carried on extensively, and in 1868 the Cleveland Rolling Mill Company turned out Bessemer steel. In 1870, one-third of the Pennsylvania oil field product was shipped to Cleveland. In 1872, East Cleveland became a part of the city and the next year Newburgh was annexed. The stone viaduct, 3,211 feet long, costing \$2,170,000, was built in 1877, bringing the business from both sides of the river into closer relations, while in 1888 a high level bridge spanning another section of the Flats that separate the residence and principal business portion of the city was erected. Improvements in harbor facilities and a growth of manufacturing establishments, largely in interests kindred to iron and steel, have since placed Cleveland in the front rank among cities dependent upon similar resources for advancement.

LOCATION WITH REFERENCE TO SUPPLIES AND TRANSPORTATION FACILITIES.

From the iron mines of Michigan, Wisconsin and Minnesota, over the lakes comes more than one-half the ores for the vast iron and steel industries of this country, which can now boast of a larger production of pig iron, Bessemer steel ingots and steel rails than any country in the world. From the great bituminous coal regions of Ohio and Pennsylvania, there is distributed annually over the lakes to the North-west more than 3,000,000 tons of the best soft coal product in the world. Here the forest product of the great Saginaw Valley district in Michigan, and the new lumber regions of Wisconsin and Minnesota, also carried on the lakes, finds a distributing market. Eleven railways, operating 5,237 miles of working line, meet this vast water-borne commerce in Cleveland, and 2,300 manufacturing establishments, with a product

valued at \$104,199,169 in 1890, according to the Eleventh Census, take advantage of the resources thus furnished to capital and skill in all branches of industry.

In the departments into which this work has been divided will be found abundant evidence of the city's growth and general prosperity; its claim to the front rank as one of the great manufacturing cities of the Union; its prestige as the largest ship-building center in America and the largest ship-owning port outside of New York. The data given in every instance will bear the closest inspection, as they are drawn largely from United States census returns and other official reports equally reliable. Although the figures in some cases, especially with regard to the tremendous showing in manufactures and the wonderful growth in lake commerce, are almost beyond comprehension, there is nothing visionary about them, and there is nothing exaggerated through local pride in their presentation. They are cold, clear, official statements of facts.

This proof of continual advancement is the best evidence of the city's favorable location with reference to supplies of raw material, fuel and advantageous water and rail transportation facilities. Iron and kindred interests predominate, of course, among the manufactures, and it is most natural that such should be the case. Here on the shore of Lake Erie is the natural meeting point of these supplies of fuel and raw material. Just as it has been demonstrated that the vast mineral regions of the North-west would never have been developed but for the cheap transportation rates afforded by these inland waters, in bringing iron ore and fuel together, so is it evident that this city offers the greatest advantage to industries of this kind. Thus it is that the multitude of other branches of trade dependent even in a remote way upon the iron industry have followed the lead of powerful corporations, and now almost any article, from the crude pig iron to the finest finished steel, may be procured from hundreds of rolling mills, foundries, steel mills, wire nail and stove manufactories, as well as the great number of other concerns of a similar nature. Cleveland's productive indus-

try does not end, however, with the establishments closely allied to the iron trade. Its products from lumber mills, flouring and grist mills, and slaughtering and meat packing establishments are almost of equal importance. Two of the largest shoddy mills in America are located here; 100,000 sewing machines are made here annually, and the largest sewing machine furniture works in this or any other country finds here special advantages in securing its raw material. This brief summary is intended only for the purpose of drawing attention to Cleveland as a market for supplies. Elsewhere the achievements and progress of these great industrial works are referred to in detail.

ATTRACTIVE FEATURES OF THE CITY.

Wealth among its leading citizens, broad streets and avenues, magnificent dwellings and a most healthful climate have gained for Cleveland a place among the most delightful home cities of the land. Its churches, educational institutions of high order, parks and monuments are also attractive features that warrant at least brief mention in an industrial work of this kind.

Within the past few years, the increase in street railways has been such that it can be claimed with confidence that no other city in the country is as well provided in this regard. Out of 174.4 miles of street railway in the city, only two lines are now operated by horses, and the managers of these two lines have begun the work of equipping them with electricity. Before July 1, 1893, the last horse car will have been seen on the streets of the city. In twenty miles of cable railway, recently put down by the Cleveland City Cable Railway Company, the city has the best plant of the kind ever constructed. This street railway development has had a great deal to do with the city's progress.

PARKS, AVENUES, ETC.

The total park area of the city is a little more than ninety-three acres, divided as follows: Wade Park, 63.5 acres; Lake View Park, 10.415 acres; South Side Park, 9.116 acres; Monumental Square, 4.44 acres; Miles Park, 2.045 acres; Clinton Park, 1.981 acres; Franklin Circle, 1.414 acres; Mariposa Park, 0.41 acres. Of these various breathing places in different sections of the city, Wade Park is especially deserving of mention on account of its present large area and the grand scheme of extensions contemplated in connection with it. This park, which now contains a large artificial lake, a zoological garden, numerous broad drives, and most picturesque landscape, and which is reached by a line of cable and two lines of electric railway, is located on the north side of Euclid avenue, just opposite Adelbert College and the Case School of Applied Science, and in the vicinity of Lake View Cemetery, where is located the famous Garfield memorial. On the surrounding streets and avenues are the homes of the wealthiest families of the city. The park extends north for a distance of more than a mile along a broad ravine that runs to the lake front. At the north end of this ravine and on the lake front is the extensive and elegant private park of the late W. J. Gordon. A boulevard scheme, which has the endorsement of the Board of Trade and leading citizens generally, contemplates a continuance of Wade Park to Gordon Park on the lake front, and the construction of a boulevard for ten miles or more along the lake front and the northern section of the city to Lake avenue and Detroit road, another section of elegant homes and beautiful surroundings on the west side of the river. This grand project has as yet only received public endorsement, but the ultimate success of its supporters seems almost certain.

CHURCHES AND RELIGIOUS INSTITUTIONS.

In churches and institutions of learning, the city will compare favorably with any of the large cities of the country. No less than a dozen church edifices here are valued at \$75,000 to \$150,000 each, and in the number of churches the city is well up in the front rank. Cleveland has always been foremost in religious matters, and its missionary organizations, branches of the national temperance associations, and similar bodies of this kind are noted for earnest work and large representation in all important gatherings. The Young Men's Christian Association, in February, 1891, completed, at the intersection of Prospect, Huron and Erie streets, a magnificent building, costing \$274,000, and having an assembly room with seating capacity for 900. It is the peer of any of the grand structures owned by this great organization. The city is replete with places of worship, representing nearly all denominations, of which the following are noted: Congregational 21, Baptist 20, Methodist Episcopal 27, Catholic 26, Disciple 8, Evangelical Association 12, Evangelical Lutheran 14, Reformed Church of the United States 10, Dutch Church of America 2, Holland Christian 2, United Evangelical 8, Free Methodist 1, Friends 1, Hebrew 9, Presbyterian 17, United Presbyterian 2, Protestant Episcopal 16, Reformed Episcopal 1, Spiritualists 2, Swedenborgian 1, Unitarian 1, United Brethren 3, Universalist 1, Wesleyan Methodist 1. In addition to these established churches, there are numerous missionary organizations holding services in different parts of the city.

EDUCATIONAL INSTITUTIONS.

Foremost among the educational institutions is the Western Reserve University, embracing Adelbert College, the Cleveland Medical College, Cleveland School of Law, Col-

lege of Dentistry, Conservatory of Music, Cleveland College for Women, the Western Reserve Academy of Hudson, Ohio, and the Green Spring Academy, of Green Spring, Ohio. With great enterprise and liberal endowments, amounting in the past three or four years to about \$300,000 in the various branches, this university is coming to be recognized as one of the great centers of learning. Adelbert College, the leading branch of the university, is located on Euclid avenue, opposite Wade Park, in a vast stone building with spacious grounds. The college bears the name of a deceased son of the late Amasa Stone, whose money largely endowed the institution. Rev. Charles F. Thwing, D. D., is president of the university, Rev. Ebenezer Bushnell, D. D., secretary and treasurer, and Z. M. Hubbell, auditor. During the present year the number of new students in all the departments of the university is over 300, making the total attendance about 1,000. Adelbert College now has 100 students and the number is increasing largely, especially in the higher classes. The College for Women, located on adjoining grounds in two beautiful buildings, Clark Hall and Guilford Cottage, has been favored with liberal endowments of late and is fast reaching a high position among colleges for women. The Cleveland Medical College is also classed among the best institutions of its kind, and is located in an immense stone structure at the corner of Erie and St. Clair streets. G. C. E. Weber, M. D., is the dean. Franklin Bassett and Charles Heydler are the directors of the Conservatory of Music, located at 122 Euclid avenue, and Evan H. Hopkins is the registrar of the School of Law. Attendance in the different departments of the university on October 1, 1892, was as follows: Adelbert College, 100; College for Women, 82; Medical Department, 150; Conservatory of Music, 350; Western Reserve Academy, 63; Green Spring Academy, 45. The number of professors and instructors is 91.

The Case School of Applied Science is on grounds adjoining Adelbert College, and was founded by an endowment from the estate of the late Leonard Case. All of the mechanical arts are taught in the school and young men are

fitted for all branches of civil engineering. Its president is Cadey Staley, LL. D. The Homeopathic Hospital College, the Medical Department of the University of Wooster and various other private institutions teaching the sciences and arts are also located here. The new Homeopathic Hospital College building, dedicated recently, is a great credit to the city as an institute that stands for advanced medical education. It is on Huron street, on grounds adjoining the Huron Street Hospital, of which it is a part. It is a massive structure of stone and brick, five stories high, and built with due regard to the requirements of the modern day and generation.

The circulating department of the Cleveland Public Library contains 46,203 volumes; reference department and reading room, 17,963 volumes; librarian's collection of Bibliography, 277 volumes; unclassified volumes, 2,443; pamphlets, 1,885; total, exclusive of pamphlets, 66,920.

CLEVELAND NEWSPAPERS.

Just 112 newspapers, magazines and periodicals of all kinds are now published in Cleveland. The list represents every form of publication, with a great variety of trade, church and association journals, including seven printed in foreign languages. Two morning and four evening daily English publications claim a combined circulation of about 125,000, while the German dailies would probably add a circulation of 25,000 or more. These daily papers circulate very largely through Northern Ohio and portions of Eastern Indiana and Western Pennsylvania and South-western New York, all of them publishing special editions, morning and evening, for this service outside of the city. Horses and wagons are used in supplying trains leaving the city during all hours of the day and night, and also in carrying papers to supply stations throughout the city and suburbs in order to facilitate distribution by carriers. The morning

papers issue two to four editions, while as many as seven editions are issued by the afternoon publications.

The daily newspapers are all well established institutions, fortified by the best press franchises in nearly all cases, and the offices are equipped with modern perfecting presses, stereotyping plants and other improvements of the latest kind. Their policy in everything pertaining to business affairs is highly conservative but entirely favorable to the advancement of the city.

HEALTH STATISTICS—METEOROLOGICAL DATA.

In the tables that follow will be found some very forcible evidence of the claim that the city is healthful in all seasons. A comparison made from reports of boards of health in twenty leading cities of the Union places the number of deaths per 1,000 inhabitants in Cleveland at 16.61 against an average above twenty-three in the nineteen other cities and a maximum of 29.91 in New York. The average yearly mean temperature of the city for twenty years past is 49°, according to the records of the United States Weather Bureau, and the city, although located on the shore of Lake Erie, is free from dangerous winds. These tables will be found interesting :

NUMBER OF DEATHS PER 1,000 INHABITANTS IN LEADING CITIES.

(From Reports of Health Departments.)

| CITY. | STATE. | POPULATION. | No. of Deaths per one thousand. |
|--------------------|--------|-------------|---------------------------------|
| New Orleans..... | La. | 241,995 | 29.91 |
| Washington | D. C. | 230,392 | 27.40 |
| Jersey City | N. J. | 163,003 | 26.12 |
| New York | N. Y. | 1,515,301 | 25.37 |
| Boston | Mass. | 448,477 | 24.70 |
| Brooklyn | N. Y. | 806,343 | 24.60 |
| St. Louis | Mo. | 451,770 | 24.50 |
| San Francisco..... | Cal. | 297,990 | 23.09 |
| Detroit | Mich. | 205,876 | 22.37 |
| Philadelphia | Pa. | 1,046,964 | 22.32 |
| Pittsburgh..... | Pa. | 238,617 | 20.31 |
| Louisville | Ky. | 161,500 | 19.57 |
| Chicago..... | Ill. | 1,099,850 | 19.40 |
| Cincinnati | Ohio | 296,908 | 19.37 |
| Baltimore..... | Md. | 434,439 | 19.32 |
| Buffalo | N. Y. | 255,064 | 18.23 |
| Milwaukee..... | Wis. | 204,468 | 18.03 |
| Indianapolis..... | Ind. | 107,445 | 17.30 |
| Cleveland..... | Ohio. | 261,353 | 16.61 |

METEOROLOGICAL SUMMARY COVERING TWENTY YEARS ENDING DECEMBER 31, 1891.

(Furnished by W. B. Stockman, Local Forecast Official, Weather Bureau, United States Department of Agriculture.)

| MONTH. | TEMPERATURE. | | | Average Rainfall, inches. | Highest Velocity of Wind, Miles. | Probability of Rainy Days. | Average Cloudiness. |
|----------------|---------------|----------|---------|---------------------------|----------------------------------|----------------------------|---------------------|
| | Mean average. | High'st. | Lowest. | | | | |
| January..... | 26 | 70 | -17 | 2.61 | 47 | .56 | .73 |
| February | 28 | 72 | -15 | 2.85 | 48 | .49 | .64 |
| March | 33 | 76 | -4 | 2.90 | 53 | .51 | .65 |
| April | 45 | 85 | 15 | 2.35 | 52 | .43 | .53 |
| May | 57 | 92 | 28 | 3.35 | 49 | .41 | .46 |
| June..... | 66 | 96 | 40 | 4.02 | 51 | .41 | .45 |
| July | 72 | 97 | 50 | 3.88 | 48 | .37 | .43 |
| August..... | 68 | 99 | 46 | 3.14 | 48 | .32 | .42 |
| September..... | 63 | 98 | 36 | 3.84 | 48 | .38 | .49 |
| October..... | 53 | 87 | 24 | 2.96 | 44 | .41 | .57 |
| November | 41 | 74 | 0 | 2.85 | 44 | .48 | .72 |
| December | 32 | 68 | 12 | 2.70 | 45 | .56 | .75 |

— Below zero.

Average yearly mean temperature, 49°.

Average yearly rainfall, 37.45 inches.

II.—POPULATION.

GROWTH BY DECADES FROM THE BEGINNING—COMPARISON WITH OTHER LAKE CITIES—POPULATION AND IMPORTANCE OF CITIES AND TOWNS TRIBUTARY TO CLEVELAND.

A percentage of growth in the next decade equal to that of the past will give Cleveland a population in 1900 of 428,000. In 1870, New Orleans, Buffalo, Washington, Newark and Louisville were among fourteen cities of this country containing more than 100,000 inhabitants each. Cleveland's population in 1870 was only 92,829, but in being classed as the tenth city of the country by the census of 1890, all of the places named have been passed in the race for supremacy.

In the Central West, according to a recent report from the Census Bureau, 25.90 per cent., or a trifle more than one-fourth of the inhabitants, are classed as urban. In the past ten years, the number of the urban element in this section has nearly doubled, while the total population has increased but 28.78 per cent. This massing of population in large cities, and especially the concentration of immigration in these places, may be considered dangerous to good government, but it will be interesting to note what Hon. Robert P. Porter, Superintendent of the Eleventh Census, has to say on the subject as regards Cleveland: "It would be manifestly unfair," he says, "to compare this aggregation of people, 83½ per cent. of whom in New York City live over ten in a dwelling, and 66¾ per cent. of whom live more than twenty persons to a dwelling, with a city like Cleveland, with its

numerous dwellings, where only 17 per cent. of the population reside over ten in a dwelling house, and where, instead of 66½ per cent., as in New York, not quite 4¼ per cent. live over twenty in a house."

Although Cleveland's gain in inhabitants is next to that of Chicago in this advancement of large cities, nothing in the nature of a boom has helped its progress. It is a steady, conservative advancement, characteristic of everything pertaining to the city. A very large proportion of the city's gain in population is due to its advantages as a lake port, and in this connection there is presented here a table, compiled from census reports, showing a gain in inhabitants of leading lake cities unsurpassed by any other section of the country. Other tables deal with the growth of the city from its beginning, the progress of surrounding Ohio towns having close business relations with Cleveland, and the police reports on the arrival of immigrants.

In an address delivered in Cleveland in April last, under the auspices of the Cleveland Board of Industry and Improvement, Hon. Robert P. Porter, Superintendent of the Eleventh Census, called special attention to the marvelous growth of lake cities. Mr. Porter presented a list of thirty-two cities on the lakes whose population in 1890 exceeded 8,000, and made a comparison with the population of 1880. The result is shown in the following:

| | 1880. | 1890. |
|---|-----------|-----------|
| Four cities on Lake Superior had population..... | 5,528 | 64,147 |
| Five " " Lakes Huron and St. Clair had population | 181,610 | 304,863 |
| Twelve " " Lake Michigan had population..... | 734,196 | 1,502,663 |
| Seven " " Lake Erie had population..... | 420,685 | 675,310 |
| Four " " Lake Ontario had population..... | 131,520 | 182,125 |
| Total..... | 1,473,539 | 2,729,108 |

From 1,473,539 in 1880 to 2,729,108 in 1890 represents a growth of over 85 per cent.

CLEVELAND'S GROWTH BY DECADES.

| Years. | | Number of Inhabitants. |
|--------|---------------------------|------------------------|
| 1830, | United States Census..... | 1,075 |
| 1840, | " " " | 6,071 |
| 1850, | " " " | 17,054 |
| 1860, | " " " | 43,838 |
| 1870, | " " " | 92,825 |
| 1880, | " " " | 160,146 |
| 1890, | " " " | 261,353 |
| 1892, | City Directory..... | *309,243 |

*Allowing three persons for each name.

A SIGNIFICANT COMPARISON.

(United States Census on Population.)

| CITIES. | Per Cent. of gain since 1870. | 1890. | 1880. | 1870. |
|-----------------|-------------------------------|---------|---------|---------|
| Cincinnati..... | 37.3 | 296,908 | 255,139 | 216,239 |
| Cleveland | 181.5 | 261,353 | 160,146 | 92,829 |
| Buffalo | 117.2 | 255,664 | 155,134 | 117,714 |
| Detroit..... | 161.2 | 205,876 | 116,340 | 79,577 |

TOWNS AND CITIES UPON THE COAST-LINE OF THE GREAT LAKES AND CHANNELS HAVING A POPULATION EXCEEDING 1,000 EACH.

(United States Census, 1890.)

| Towns and Cities. | Population. | Towns and Cities. | Population. |
|-------------------------|-------------|------------------------------|-------------|
| Chicago, Ill..... | 1,099,850 | Marquette, Mich..... | 9,093 |
| Cleveland, Ohio..... | 261,353 | Ashtrabula, Ohio..... | 8,338 |
| Buffalo, N. Y..... | 255,664 | Plattsburgh, N. Y..... | 7,010 |
| Detroit, Mich..... | 205,876 | Escenaba, Mich..... | 6,808 |
| Milwaukee, Wis..... | 204,468 | Niagara, N. Y..... | 5,502 |
| Rochester, N. Y..... | 133,896 | Grand Haven, Mich..... | 5,023 |
| Toledo, O..... | 81,434 | Suspension Bridge, N. Y..... | 4,405 |
| Grand Rapids, Mich..... | 60,278 | Conneaut, O..... | 3,241 |
| Erie, Pa..... | 40,634 | Cuyahoga Falls, O..... | 2,614 |
| Duluth, Minn..... | 33,115 | Highland Park, Ill..... | 2,163 |
| Oswego, N. Y..... | 21,842 | Houghton, Mich..... | 2,062 |
| Sandusky, Ohio..... | 18,471 | Port Clinton, Ohio..... | 2,049 |
| Port Huron, Mich..... | 13,543 | Huron, Ohio..... | 1,380 |
| Fond du Lac, Wis..... | 12,024 | Bayfield, Wis..... | 1,373 |
| Superior, Wis..... | 11,983 | Cape Vincent, N. Y..... | 1,324 |
| Ogdensburg, N. Y..... | 11,662 | Champlain, N. Y..... | 1,275 |
| Michigan City, Ind..... | 10,776 | Lake Forest, Ill..... | 1,203 |
| Dunkirk, N. Y..... | 9,416 | Fairport, Ohio..... | 1,171 |

GROWTH IN POPULATION OF AMERICAN CITIES.

(United States Census.)

| CITIES. | 1890. | 1880. | 1870. | Ratio of increase 20 years. |
|--------------------|-----------|-----------|---------|-----------------------------|
| New York..... | 1,513,501 | 1,209,209 | 942,292 | 60.6 |
| Chicago..... | 1,099,850 | 503,185 | 298,987 | 267.4 |
| Philadelphia..... | 1,044,894 | 847,170 | 674,022 | 55.0 |
| Brooklyn..... | 806,343 | 566,663 | 396,099 | 103.5 |
| St. Louis..... | 450,245 | 350,518 | 310,864 | 44.8 |
| Boston..... | 446,507 | 362,839 | 250,526 | 78.2 |
| Baltimore..... | 434,151 | 332,313 | 267,354 | 62.4 |
| San Francisco..... | 297,990 | 233,959 | 149,473 | 99.4 |
| Cincinnati..... | 296,908 | 255,189 | 216,234 | 37.3 |
| Cleveland..... | 261,353 | 160,146 | 92,829 | 181.5 |
| Buffalo..... | 255,664 | 155,134 | 117,714 | 116.1 |
| New Orleans..... | 241,995 | 166,090 | 191,418 | 26.4 |
| Pittsburgh..... | 238,473 | 156,389 | 86,076 | 177.0 |
| Washington..... | 229,796 | 147,293 | 109,199 | 110.4 |
| Detroit..... | 205,876 | 116,340 | 79,577 | 161.2 |
| Milwaukee..... | 204,468 | 115,587 | 71,440 | 185.5 |
| Newark..... | 181,518 | 136,508 | 105,059 | 72.7 |
| Minneapolis..... | 164,738 | 46,887 | 13,066 | 1,160.8 |
| Jersey City..... | 163,987 | 120,722 | 82,546 | 98.6 |
| Louisville..... | 161,005 | 123,758 | 100,753 | 58.8 |
| Omaha..... | 139,526 | 30,518 | 16,083 | 767.5 |
| Rochester..... | 133,896 | 89,366 | 62,386 | 121.7 |
| St. Paul..... | 133,156 | 41,473 | 20,030 | 564.7 |
| Kansas City..... | 132,416 | 55,786 | 32,260 | 313.5 |
| Providence..... | 132,043 | 104,857 | 68,904 | 91.6 |
| Indianapolis..... | 107,445 | 75,056 | 48,244 | 122.7 |
| Denver..... | 106,670 | 35,629 | 4,759 | 2,141.4 |
| Allegheny..... | 104,967 | 78,682 | 53,180 | 97.4 |

GROWTH OF LEADING GREAT LAKE CITIES.

(United States Census.)

| CITIES. | 1840. | 1850. | 1860. | 1870. | 1880. | 1890. |
|---------------------------------|--------|--------|---------|---------|---------|-----------|
| Chicago, Ill..... | 4,470 | 28,269 | 109,263 | 298,977 | 503,185 | 1,099,850 |
| Cleveland, O..... | 6,071 | 17,034 | 36,064 | 92,829 | 160,146 | 261,353 |
| Buffalo, N. Y..... | 18,313 | 42,261 | 81,131 | 117,714 | 155,134 | 255,664 |
| Detroit, Mich..... | 9,102 | 11,019 | 45,619 | 79,577 | 116,340 | 205,876 |
| Milwaukee, Wis..... | 1,700 | 20,001 | 45,254 | 71,440 | 115,587 | 204,468 |
| Toledo, O..... | 1,222 | 3,829 | 13,768 | 31,584 | 50,137 | 81,434 |
| Saginaw, (E. and W.) Mich..... | | | | 18,810 | 29,541 | 46,322 |
| Erie, Pa..... | 5,858 | 9,417 | 19,646 | | 27,737 | 40,634 |
| Duluth, Minn..... | | | | | 3,843 | 33,115 |
| Bay City, (E. and W.) Mich..... | | | | 7,064 | 27,090 | 27,839 |
| Oswego, N. Y..... | 12,205 | 16,817 | 20,910 | 21,116 | 21,116 | 21,842 |
| Racine, Wis..... | 5,107 | 10,000 | 9,880 | 16,081 | 16,081 | 21,014 |
| Sandusky, O..... | 1,434 | 6,008 | 8,408 | 13,000 | 15,388 | 18,471 |
| Superior, Wis..... | | | | | 656 | 11,988 |

Leading increases in the last decade were: Chicago, 596,-665; Cleveland, 101,207; Buffalo, 100,530; Detroit, 89,536; Milwaukee, 88,881; Toledo, 31,297.

TABLE SHOWING GAIN IN POPULATION OF OHIO TOWNS
HAVING CLOSE BUSINESS RELATIONS WITH CLEVELAND.

(From Eleventh United States Census.)

| CITIES. | 1890. | 1880. | Per cent. of gain. |
|---------------------|--------|--------|-----------------------|
| Akron | 27,601 | 16,512 | 67.16 |
| Alliance | 7,607 | 4,636 | 63.86 |
| Ashtabula | 8,338 | 4,445 | 87.58 |
| Canton | 26,189 | 12,258 | 113.65 |
| East Liverpool..... | 10,956 | 5,568 | 96.77 |
| Elyria | 5,611 | 4,777 | 17.46 |
| Findlay..... | 18,553 | 4,633 | 300.45 |
| Fostoria | 7,070 | 3,569 | 98.09 |
| Fremont..... | 7,141 | 8,456 | * 15.43 |
| Galion | 6,326 | 5,635 | 12.26 |
| Lima | 15,987 | 7,567 | 111.27 |
| Mansfield..... | 13,473 | 9,859 | 36.65 |
| Marietta | 8,273 | 5,444 | 51.96 |
| Massillon..... | 10,092 | 6,836 | 47.63 |
| Norwalk | 7,195 | 5,704 | 26.13 |
| Salem | 5,780 | 4,041 | 43.03 |
| Sandusky..... | 18,471 | 15,838 | 16.62 |
| Warren..... | 5,973 | 4,428 | 34.89 |
| Wellsville | 5,247 | 3,377 | 55.07 |
| Wooster | 5,901 | 5,840 | 1.04 |
| Youngstown | 33,220 | 15,435 | 115.23 |
| Zanesville | 21,009 | 18,113 | 15.98 |

* Decrease.

IMMIGRANTS SETTLED IN CLEVELAND, YEAR ENDING DECEMBER 31, 1891.

(From Police Reports.)

| Nationality. | Number. | Nationality. | Number. |
|-----------------|---------|---|---------|
| Bohemians..... | 1,292 | Russians | 70 |
| Danes..... | 27 | Slavonians..... | 603 |
| English | 288 | Swedes | 16 |
| French..... | 3 | Welsh | 6 |
| Germans..... | 1,528 | | |
| Hungarians..... | 734 | Total | 5,995 |
| Irish..... | 245 | Arrived in the city for surrounding places..... | 7,670 |
| Italians..... | 125 | | |
| Norwegians..... | 4 | | |
| Poles | 1,054 | Total..... | 13,665 |

III.—COMMERCIAL.

HARBOR OF REFUGE, RIVER, CANAL, ETC.—ENTRANCES AND CLEARANCES BY LAKE, CANAL AND RAILROADS FOR PAST TWO YEARS IN COMPARISON—IRON ORE, COAL AND COKE TRADE OF CLEVELAND AND OTHER LAKE ERIE PORTS—RAILROAD TRANSPORTATION FACILITIES, FREIGHTS ON RAW AND FINISHED MATERIALS, ETC.

| | <i>Net Tons.</i> |
|--|------------------|
| Total outward freight movement by rail, 1891 | 5,535,322 |
| Receipts and shipments by lake, 1890..... | 4,371,269 |
| Receipts and shipments by canal, 1891..... | 57,618 |

In discussing the above figures and the various lines of traffic that go to make up this grand aggregate tonnage movement, it will be appropriate to take up first the subject of lake commerce. Among the many advantages that combine to make Cleveland a great commercial center, and that have gained for it the honor of owning more floating property than any other city on the continent, excepting New York, are its river and harbor facilities. A brief review of these works, built up in part by the general government, may accordingly prove interesting in advance of statistical information regarding this branch of traffic. The city has a river frontage of sixteen miles, full five miles of which is built up in docks. About a mile of this dockage is taken up in passenger boat landings, warehouses and a few small grain elevators; the balance is devoted to iron furnaces, limekilns, slaughtering and meat packing establishments, and to the

handling of immense quantities of iron ore, coal, pig iron and lumber, which latter are the mainstays of the city's commercial prosperity. As regards the city's future, however, the outward harbor, or the enclosure within the breakwater, is of most importance. This immense basin, already protected by nearly two miles of solid timber and masonry, built high above the water level, is intended to provide harbor facilities for future generations.

THE BREAKWATER—COST OF ALL HARBOR IMPROVEMENTS.

In 1825, when the first river and harbor improvement work was begun in Cleveland, there was only three feet of water in a narrow and crooked channel at the mouth of the river. To-day the harbor, with its great stretch of breakwater, is among the finest on the lakes. A large expenditure of money has been required in this work, but there is no doubt of its return tenfold in the benefits to shipping. The total cost of river and harbor improvements of all kinds made in Cleveland by the general government, including maintenance, up to June 30, 1891, was \$1,563,999.86, divided as follows:

| | |
|---|----------------|
| On surveys, dredging, piers, etc., before adoption of outer harbor work, or breakwater..... | \$ 346,881 61 |
| Amount on same since adoption of outer harbor work..... | 50,000 00 |
| Breakwater construction and repairs..... | 1,167,118 25 |
| Total..... | \$1,563,999 86 |

To the west of the harbor entrance, a breakwater 7,160 feet in length has been completed since 1883, and work on a similar structure to the eastward had progressed to the extent of 2,148 feet on June 30, 1892, with appropriations available for 450 feet additional. Plans for the west breakwater were adopted in 1875. This structure starts about 700 feet west of the point where the old river bed was known

to enter the lake, and runs north 3,130 feet and then west 4,030 feet parallel to the shore. At a distance of 200 feet from the eastern extremity a spur of 100 feet runs out at right angles, to break the force of seas making toward the harbor entrance. The eastern arm, of which 2,148 feet have been constructed, commences on the same alignment as that portion of the western arm running parallel to the shore, leaving an opening of 500 feet. According to plans, this eastern portion of the work will extend parallel to the shore 3,500 feet and then inclining to the shore at an angle of about 20 degrees will run 2,000 feet more. This incline of 2,000 feet will not bring the structure to the shore, and it is the intention of the interests most concerned in the work to secure an extension still further that will give the city about two miles of water front thus enclosed.

CLEVELAND'S PORTION OF LAKE COMMERCE.

As shown by returns furnished the Bureau of Statistics, Treasury Department, Cleveland ranks fourth among the cities of the great lakes in the volume of receipts and shipments of freight in 1890, the aggregate being 4,371,269 net tons. Chicago and Buffalo, two leading terminal points on these waterways, are ahead of Cleveland, on account of their location at the western and eastern extremities of the most important portion of the lake system. Escanaba, Mich., the third largest city in point of commerce, owes its prominence entirely to its shipments of iron ore, the volume of which is exceeded only by one other port in the world, Bilbao, Spain. As will be shown further on, however, the shipment and sale of this great ore product, which heads the list of freight moved by lake, is controlled in Cleveland. Receipts and shipments of twenty leading ports follow:

AGGREGATE RECEIPTS, SHIPMENTS, AND TOTAL BUSINESS IN
 NET TONS, OF THE LEADING PORTS ON THE GREAT
 LAKES IN THE UNITED STATES COAST-
 WISE TRADE FOR THE YEAR 1890.

(Bureau of Statistics, Treasury Department.)

| PORTS. | Receipts. | Shipments. | Total. |
|--------------------|-----------|------------|-----------|
| Chicago..... | 5,409,310 | 2,543,446 | 7,952,756 |
| Buffalo..... | 4,385,356 | 2,752,340 | 7,137,696 |
| Escanaba..... | 228,880 | 4,267,641 | 4,496,521 |
| Cleveland..... | 3,261,800 | 1,109,469 | 4,371,269 |
| Ashland..... | 284,722 | 2,858,278 | 3,143,000 |
| Ashtabula..... | 2,470,797 | 408,060 | 2,878,857 |
| Milwaukee..... | 1,603,706 | 510,442 | 2,114,148 |
| Toledo..... | 678,042 | 1,213,564 | 1,891,606 |
| Marquette..... | 256,959 | 1,515,449 | 1,772,408 |
| Erie..... | 1,042,844 | 695,231 | 1,738,075 |
| West Superior..... | 959,433 | 431,384 | 1,390,817 |
| Fairport..... | 1,212,987 | 62,883 | 1,275,870 |
| Duluth..... | 874,417 | 333,660 | 1,208,077 |
| Tonawanda..... | 1,081,112 | ..... | 1,081,112 |
| Two Harbors..... | 37,262 | 975,350 | 1,012,612 |
| Detroit..... | 601,498 | 99,833 | 701,331 |
| Muskegon..... | 16,409 | 656,787 | 673,196 |
| Manistee..... | 28,135 | 606,465 | 634,600 |
| Sandusky..... | 332,968 | 263,141 | 596,109 |

Of this total movement of 4,371,269 tons of freight at Cleveland, 3,088,512 tons were coal and iron ore. Pig iron, lumber products and miscellaneous merchandise also figure largely in this tonnage, as shown in the following classification:

RECEIPTS AND SHIPMENTS BY LAKE AT CLEVELAND OF
LEADING COMMODITIES DURING THE
CALENDAR YEAR 1890.

(Bureau of Statistics, Treasury Department.)

| COMMODITIES. | Receipts. | Shipments. |
|--|-----------|------------|
| Wheat, bushels..... | 352,942 | ..... |
| Corn, bushels..... | 133,216 | ..... |
| Oats, bushels..... | 214,451 | 40,000 |
| Barley, bushels..... | | 12,168 |
| Flour, net tons..... | 80 | ..... |
| Millstuff, net tons..... | 12 | ..... |
| Coal, net tons..... | 375 | 880,121 |
| Iron ore, net tons..... | 2,205,283 | 2,733 |
| Pig iron, net tons..... | 42,750 | 5,523 |
| Copper, net tons..... | 3,513 | ..... |
| Salt, net tons..... | 3,440 | 70 |
| Cement, barrels..... | 5,000 | ..... |
| Stone, net tons..... | 76,628 | 7,595 |
| Lumber, M. feet..... | 432,735 | 216 |
| Shingles, M..... | 59,934 | ..... |
| Laths, M..... | 17,098 | ..... |
| Miscellaneous lumber products, tons..... | 21,709 | 682 |
| Miscellaneous freight, net tons..... | 127,130 | 211,870 |
| Total net tons..... | 3,261,800 | 1,109,469 |

CUSTOMS DISTRICT OF CUYAHOGA.

Cuyahoga customs district, made up of Cleveland, Ashtabula, Fairport and Lorain, has a combined commerce by lake far in excess of that of any other customs district on the lakes. It is a commerce that will compare favorably with that of leading maritime ports throughout the world. It is all controlled and managed in Cleveland, but a large portion of it has drifted to the adjacent towns through the constant demand for increased harbor facilities. Let us compare, then, the commerce of this district, built up by Cleveland capital, with the commerce of prominent ports of the United States and foreign countries, and a still better knowledge will be obtained of its magnitude:

TOTAL FOREIGN AND COASTWISE COMMERCE, 1890.

(Bureau of Statistics, Treasury Department.)

| | <i>Net Tons.</i> |
|------------------------------------|------------------|
| Cuyahoga district (Cleveland)..... | 9,929,378 |
| London..... | 20,962,534 |
| Liverpool | 16,621,421 |
| Glasgow..... | 5,977,860 |
| Hull | 5,061,822 |

TOTAL FOREIGN COMMERCE ONLY, 1890.

Net Tons.

| | |
|--------------------|------------|
| Havre | 4,418,876 |
| Marseilles | 7,392,556 |
| Antwerp | 8,203,999 |
| Hamburg | 10,417,096 |
| Bremen..... | 3,481,769 |
| New York..... | 12,646,555 |
| Boston | 2,676,387 |
| Philadelphia | 2,585,866 |
| San Francisco..... | 1,986,483, |

In 1891, the total number of entries and clearances of vessels, foreign and coastwise, in the district, was 9,770. When it is known that on vessels of the larger class the crews number twenty men and in very few cases less than eight, some idea may be formed of the business derived by the city and surrounding small ports from this great army of sailors. The number and tonnage of vessels entering and clearing at the different ports of the district will be found in the tables here presented:

COASTWISE CLEARANCES AND ENTRIES, DISTRICT OF CUYA-HOGA, 1891.

| CLEARED. | STEAMERS. | | SAIL VESSELS. | |
|-----------------|-----------|--------------|---------------|--------------|
| | No. | Net Tonnage. | No. | Net Tonnage. |
| Cleveland | 1,711 | 1,471,581 | 1,197 | 544,749 |
| Ashtabula | 725 | 969,137 | 248 | 183,131 |
| Fairport | 322 | 410,937 | 108 | 84,567 |
| Lorain | 134 | 115,581 | 133 | 100,400 |
| Total | 2,892 | 2,967,236 | 1,686 | 912,847 |

| ENTERED. | No. | Net Tonnage. | SAIL VESSELS. | |
|-----------------|-------|--------------|---------------|--------------|
| | | | No. | Net Tonnage. |
| Cleveland | 1,660 | 1,408,341 | 1,234 | 537,939 |
| Ashtabula | 773 | 983,048 | 247 | 185,338 |
| Fairport | 366 | 461,384 | 143 | 106,722 |
| Lorain | 123 | 113,996 | 133 | 102,196 |
| Total | 2,910 | 4,966,769 | 1,757 | 932,195 |

FOREIGN CLEARANCES AND ENTRIES, DISTRICT OF CUYA-HOGA, 1891.

| CLEARED. | STEAMERS. | | SAIL VESSELS. | |
|-----------------|-----------|--------------|---------------|--------------|
| | No. | Net Tonnage. | No. | Net Tonnage. |
| Cleveland | 137 | 86,414 | 106 | 27,955 |
| Ashtabula | 8 | 5,285 | 27 | 9,900 |
| Fairport | 4 | 4,042 | 5 | 2,549 |
| Lorain | 27 | 7,479 | 11 | 2,606 |
| Total | 176 | 103,220 | 149 | 43,010 |

| ENTERED. | No. | Net Tonnage. | SAIL VESSELS. | |
|-----------------|-----|--------------|---------------|--------------|
| | | | No. | Net Tonnage. |
| Cleveland | 102 | 57,318 | 43 | 11,497 |
| Ashtabula | 6 | 2,816 | 20 | 5,707 |
| Fairport | 1 | 34 | 2 | 590 |
| Lorain | 20 | 2,762 | 6 | 1,391 |
| Total | 129 | 62,930 | 71 | 19,185 |

Every conceivable article of merchandise is included in the miscellaneous freight set down in the foregoing tables, and it will be of interest, therefore, to show in a more detailed way the great variety of minerals, agricultural products, manufactured products, etc., of which this commerce is made up. The following statement, from the office of the Collector of Customs, Cleveland, covers receipts and shipments in this way for 1891:

CLEARED, COASTWISE, CLEVELAND.

| | | | |
|------------------------------|-----------|-----------------------------------|---------|
| Iron, scrap, tons..... | 5,651 | Merchant iron, bars..... | 700 |
| Merchant iron, tons..... | 33,543 | Miscellaneous Merchandise, tons.. | 40,832 |
| Wire, spools..... | 312 | Fire brick..... | 66,000 |
| Wire, packages..... | 916 | Marble, tons..... | 12 |
| Wire, tons..... | 3,784 | Window blinds, bundles..... | 16 |
| Hoop iron, tons..... | 318 | Fire clay, bbls | 120 |
| Steel rails, tons..... | 200 | Galvanized iron, bundles..... | 20 |
| Rope, coils | 28 | White lead, tons..... | 25 |
| Lard oil, bbls..... | 608 | Fire clay, tons..... | 3 |
| Cork, tons..... | 10 | Water pipe, pieces..... | 500 |
| Pitch, tons..... | 25 | Water pipe, tons..... | 142 |
| Plaster, tons..... | 200 | Brick | 200,000 |
| Coke, tons..... | 145 | Brick, tons..... | 2,160 |
| Bran, tons..... | 10 | Bolts, kegs..... | 450 |
| Empty barrels..... | 600 | Sewing machines | 7,090 |
| Peaches, baskets..... | 1,289 | Iron, cars..... | 7 |
| Sash, bundles..... | 17 | Sugar, tons..... | 2,149 |
| Sweet potatoes, barrels..... | 669 | Sugar bbls..... | 8,076 |
| Pig iron, tons..... | 7,482 | Cement, bbls..... | 110 |
| Paint, bbls..... | 19 | Cement, tons..... | 248 |
| Oats, bu..... | 800 | Syrup, bbls..... | 200 |
| Horse shoes, kegs..... | 240 | Leaf tobacco, tons..... | 20 |
| Paint, cases..... | 5 | Flour, bbls..... | 4,615 |
| Oats, bags..... | 109 | Fertilizer, bbls..... | 200 |
| Nails, kegs..... | 520,983 | Powder, tons..... | 643 |
| Nails, tons..... | 65 | Iron castings, tons..... | 10 |
| Nails, cars..... | 7 | Rosin, tons..... | 77 |
| Logs, ft..... | 1,500,000 | Facings, bbls..... | 49 |
| Wine, bbls..... | 50 | Lime stone, cords..... | 1,141 |
| Feed, tons..... | 8 | Block stone, tons..... | 2,103 |
| Sheet-iron, tons..... | 14 | Curb stone, tons..... | 900 |
| Barb wire, spools..... | 1,567 | Spikes, kegs | 9,625 |
| Barb wire, tons..... | 1,307 | Railroad iron, cars..... | 3 |
| Fence wire, tons..... | 130 | Railroad iron, tons..... | 578 |
| Wire, cars..... | 1 | Gas pipe, tons..... | 1,386 |
| Steel, pieces..... | 500 | Old railroad iron, tons..... | 200 |
| Axle grease, pails..... | 1,100 | Soap, boxes..... | 31 |
| Axle grease, cases | 2,322 | Oil, bbls..... | 7,194 |
| Bridge iron, tons..... | 1,022 | Lubricating oil, bbls..... | 28,648 |
| Candles, cases..... | 700 | Carbon oil, barrels..... | 78,540 |
| Fruit jars, boxes..... | 280 | Kerosene oil, bbls..... | 828 |
| Bar iron, bars..... | 350 | Oil, cases..... | 78,838 |
| Rags, tons..... | 15 | Stone flagging, cords..... | 50 |
| Dressed lumber, ft..... | 63,000 | Car couplings, tons..... | 227 |

CLEARED, COASTWISE, CLEVELAND—*Continued.*

| | | | |
|-----------------------------|---------|----------------------------|---------|
| Shingles..... | 200,000 | Anthracite coal, tons..... | 10 |
| Copper, tons..... | 51 | Car springs, tons..... | 237 |
| Machinery, tons..... | 30 | Paper, tons..... | 50 |
| Staves | 260,000 | Chain, tons..... | 64 |
| Stoneware, car..... | 1 | Gasoline, bbls..... | 25 |
| Acid, tons..... | 737 | Cut stone, tons..... | 525 |
| Acid, carboys..... | 10 | Headings, bunches..... | 400 |
| Cows | 1 | Lumber, ft..... | 5,820 |
| Flat iron, tons..... | 20 | Round iron, ton..... | ½ |
| Paper, rolls..... | 500 | Window frames..... | 936 |
| Wheat, bu..... | 86,500 | Sheet iron, tons..... | 325 |
| Berries, stands..... | 50 | Sheet plate, tons..... | 40 |
| Felt, tons..... | 25 | Hay, tons..... | 299 |
| Roofing felt, tons..... | 25 | Plate iron, tons..... | 15 |
| Brick, car..... | 1 | Horses | 43 |
| Angle iron, tons..... | 100 | Peaches, baskets..... | 400 |
| Stone, tons..... | 3,580 | Stoves | 24 |
| Stone, cu. ft..... | 111 | Channel iron, tons..... | 50 |
| Stone, cords..... | 479 | Hardware, packages..... | 122 |
| Stone flagging, tons..... | 758 | Boilers | 1 |
| Car wheels, tons..... | 100 | Timber, ft..... | 320,000 |
| Car wheels, tons..... | 2,949 | Empty bbls..... | 200 |
| Street car rails, tons..... | 138 | Boiler plate, tons..... | 356 |
| Refined oil, bbls..... | 2,551 | Lime, bbls..... | 3,890 |
| Sewer pipe, pieces..... | 24 | Building paper, rolls..... | 385 |
| Sewer pipe, tons..... | 42 | Bottles, bbls | 18 |
| Carbons, boxes..... | 200 | Grapes, baskets..... | 10,052 |
| Carbons, bbls..... | 25 | Potatoes, tons..... | 15 |
| Slate, tons..... | 20 | Car axles, tons..... | 1,838 |
| Iron pipe, tons..... | 3,136 | Iron, packages..... | 529 |
| Coal, cargoes, tons..... | 989,044 | Donkeys | 2 |
| Coal fuel, tons..... | 417,696 | | |

ENTERED, COASTWISE, CLEVELAND.

| | | | |
|-----------------------------|---------|--------------------------|---------|
| Flux stone, cords..... | 5,485 | Hoops..... | 700,000 |
| Flux stone, tons..... | 1,115 | Hoops, bundles..... | 5,000 |
| Copper, tons | 12 | Bird seed, boxes..... | 150 |
| Cedar poles..... | 800 | Salt fish, lbs..... | 132,000 |
| Timber, ft..... | 315,000 | Bar iron, bars..... | 141 |
| Ice, tons..... | 18,250 | Pickets..... | 18,000 |
| Asestate of lime, tons..... | 101 | Fish, cars..... | 14 |
| Corrugated iron, tons..... | 12 | Salt fish, tons..... | 79,927 |
| Tar, barrels..... | 2,349 | Organs..... | 10 |
| Staves | 631,000 | Vinegar, bbls..... | 6,456 |
| Staves, bundles..... | 6,476 | Horses..... | 47 |
| Whiting, tons..... | 10 | Flax seed, bu..... | 26,000 |
| Berries, crates..... | 25 | Wine, gal..... | 300 |
| Oil cake, tons..... | 36 | Wine, bbls..... | 5 |
| Pickles, bbls..... | 2,133 | Block stone, tons..... | 3,424 |
| Pickles, tons..... | 12 | Grindstones, tons..... | 10,997 |
| Lees, bbls..... | 51 | Empty bottles, tons..... | 15 |
| Grindstones, tons..... | 3,286 | Canned goods, cases..... | 1,650 |
| Eggs, crates..... | 1,373 | Fish, bbls..... | 23 |
| Pig iron, tons..... | 32,072 | Lime, bbls..... | 125,208 |
| Oil, bbls | 2,670 | Strawberries, cases..... | 650 |

ENTERED, COASTWISE, CLEVELAND—Continued.

| | | | |
|-----------------------------------|------------|---------------------------|-------------|
| Miscellaneous merchandise, tons.. | 16,676 | Salt, bbls..... | 26,800 |
| Iron, tons..... | 39 | Flour, bbls..... | 3,635 |
| Gravel, yards..... | 119 | Flour, tons..... | 139 |
| Tobacco, lbs | 900 | Bran, tons..... | 35 |
| Railroad ties..... | 15,456,444 | Linseed meal, tons..... | 42 |
| Empty oil barrels..... | 1,069 | Shoes, cases..... | 139 |
| Oil, cases..... | 13,000 | Hemlock lumber, ft..... | 26,000 |
| Crackers, tons..... | 79 | Bridge iron, tons..... | 3 |
| Stone, tons..... | 23,119 | Coal, tons..... | 2,967 |
| Stoves | 76 | Ore, gross tons..... | 1,375,144 |
| Sandstone, tons..... | 1,143 | Starch, bbls..... | 100 |
| Peaches, baskets..... | 2,788 | Pulp wood, cords..... | 474 |
| Castings, tons..... | 46 | Mineral water, boxes..... | 1,972 |
| Headings, bundles..... | 400 | Mineral water, tons..... | 20 |
| Potatoes, bu..... | 5,696 | Canned goods, cases..... | 1,370 |
| Oats, bu..... | 43,000 | Car wheels..... | 210 |
| Beans, tons..... | 63 | Sheet iron, tons..... | 25 |
| Fruit, packages..... | 380 | Bolts, kegs..... | 185 |
| Potatoes, bbls..... | 1,500 | Red sandstone, tons | 519 |
| Sugar, bbls..... | 340 | Limestone, cords..... | 5,573 |
| Sugar, tons..... | 9 | Hay and straw, tons | 75 |
| Gas pipe, tons..... | 10 | Wire, packages..... | 4,416 |
| Car axles, tons..... | 64 | Logs, ft..... | 221,600,000 |
| Salt, tons..... | 245 | Bar steel, packages..... | 200 |
| Peas, bags..... | 767 | Sheep pelts, bundles..... | 93 |
| Peas, tons..... | 13 | Radiators, tons..... | 15 |
| Cement, bbls..... | 900 | Lath | 21,397,000 |
| Crackers, bbls..... | 668 | Lath, bundles..... | 1,050 |
| Starch, boxes..... | 200 | Iron, sheets..... | 100 |
| Wood pulp, tons..... | 1,270 | Timber, ft..... | 6,700,000 |
| Wood pulp, cords..... | 150 | Shingles | 31,619,000 |
| Coal tar, tons..... | 213 | Stone, cords..... | 5,894 |
| Malt, tons..... | 65 | Plaster, tons..... | 2,709 |
| Malt, bags..... | 2,225 | Rags, tons..... | 698 |
| Sand, tons..... | 60 | Rags, bales..... | 200 |
| Merchant iron, tons..... | 55 | Corn bu..... | 10,000 |
| Linseed oil, bbls..... | 60 | Wheat, bu..... | 173,641 |
| Pound poles..... | 115 | Scrap iron, tons..... | 56 |
| Wood alcohol, bbls..... | 100 | Scythe stones, boxes..... | 2,702 |
| Lubricating oil, bbls..... | 95 | Paving stone, cords..... | 1,001 |
| Fresh fish..... | 78 | Paving stone, tons..... | 600 |
| Fruit, baskets | 19,462 | Flour, sacks..... | 15 |
| Potatoes, bags..... | 317 | Iron, packages..... | 324 |
| Potatoes, tons..... | 491 | Cedar posts..... | 45,894 |
| Bolts and nuts, tons..... | 70 | Porter, bbls..... | 33 |
| Beans, bbls..... | 635 | Empty beer kegs | 300 |
| Beans, bags..... | 200 | Nails, kegs..... | 12,990 |
| Apples, bbls..... | 50 | Lumber, ft..... | 325,786,000 |
| Meat, tons..... | 35 | Dry white lead, bbls..... | 60 |
| Staves, tons..... | 77 | Rye, bu..... | 38,000 |

CLEARED, COASTWISE, ASHTABULA.

| | | | |
|----------------------------|---------|---------------------------|---------|
| Coal in cargoes, tons..... | 241,230 | Coal for fuel, tons. | 239,894 |
|----------------------------|---------|---------------------------|---------|

ENTERED, COASTWISE, ASHTABULA.

| | | | |
|----------------------|-----------|---------------------|---------|
| Lumber, ft..... | 2,376,000 | Ice, tons | 500 |
| Ore, gross tons..... | 1,526,198 | Lath..... | 400,000 |
| Potatoes, bu..... | 750 | Shingles | 500,000 |
| Bran, tons..... | 15 | Pig iron, tons..... | 973 |
| Telegraph poles..... | 1,200 | | |

CLEARED, COASTWISE, FAIRPORT.

| | | | |
|-----------------------------------|---------|--------------------------|--------|
| Coal in cargoes, tons..... | 123,649 | Coal for fuel, tons..... | 24,935 |
| Bran, tons..... | 15 | Car axles..... | 300 |
| Sugar, bbls..... | 30,492 | Dry goods, cases..... | 50 |
| Sugar, sacks..... | 12,492 | Dry goods, packages..... | 916 |
| Sugar, packages..... | 7,594 | Tin-ware, cases..... | 258 |
| Rice, sacks..... | 350 | Canned goods, cases..... | 48,938 |
| Miscellaneous merchandise, tons.. | 106 | Hair, bags..... | 80 |
| Cocoanuts, bags..... | 200 | Dry paint, bbls..... | 134 |
| Soda-ash, bags..... | 520 | Salt, bbls..... | 80 |
| Soda-ash, casks..... | 445 | Salt, bags..... | 1,275 |
| C. soda, drums..... | 200 | Coffee, sacks..... | 89 |
| Groceries, packages..... | 13,700 | Roofing paper, car..... | 1 |
| Epsom salts, bbls..... | 150 | Tin plate, boxes..... | 750 |
| Earth paint, bbls..... | 160 | Paint, bbls..... | 75 |

ENTERED, COASTWISE, FAIRPORT.

| | | | |
|---------------------------|---------|--------------------------|-----------|
| Ice, tons..... | 300 | Timber, ft..... | 225,000 |
| Corn, bu..... | 293,618 | Pier stone, cords..... | 70 |
| Telegraph poles..... | 50 | Ore, gross tons..... | 698,831 |
| Flour, bbls..... | 54,195 | Wheat, bu..... | 877,354 |
| Flour, tons..... | 1,300 | Stone, cords..... | 600 |
| Cedar ties..... | 29,000 | Lumber, ft..... | 1,497,000 |
| Lath..... | 230,000 | Pound poles..... | 3,135 |
| Oil cake, sacks..... | 4,607 | Malt, sacks..... | 2,728 |
| Oil cake, packages..... | 1,830 | Feed, sacks..... | 4,134 |
| Mill stuff, sacks..... | 340 | Seed, sacks..... | 100 |
| Flour, sacks | 207,673 | Grape sugar, sacks..... | 1,000 |
| Flour, packages..... | 3,625 | Dry fruit, bbls..... | 100 |
| Grass seed, packages..... | 800 | Bran, sacks..... | 2,962 |
| Oat meal, sacks..... | 5,678 | Pickles, bbls..... | 218 |
| Middlings, sacks..... | 140 | Shorts, sacks..... | 280 |
| Flax seed, bags..... | 291 | Oat meal, packages | 515 |
| Pickles, packages..... | 80 | | |

CLEARED, COASTWISE, LORAIN.

| | | | |
|-----------------------------------|---------|--------------------------|---------|
| Coal in cargoes, tons..... | 273,036 | Coal for fuel, tons..... | 160,776 |
| Miscellaneous merchandise, tons.. | 15 | Lumber, ft..... | 8,000 |

ENTERED, COASTWISE, LORAIN.

| | | | |
|----------------------|-----------|----------------------|---------|
| Ore, gross tons..... | 270,240 | Railroad ties..... | 37,740 |
| Lumber, ft..... | 4,446,000 | Stone, cords..... | 464 |
| Cedar posts..... | 2,500 | Stakes | 900 |
| Timber, ft..... | 30,000 | Telegraph poles..... | 20,000 |
| Shingles | 457,000 | Lath..... | 400,000 |

CLEARED, FOREIGN, CLEVELAND.

| | | | |
|------------------------------------|---------|-----------------------------------|-------|
| Wood, cords..... | 35 | Lubricating oil, bbls..... | 40 |
| Block stone, tons..... | 955 | Potatoes, bu..... | 478 |
| Coal, tons..... | 114,919 | Coke, tons..... | 10 |
| Potatoes, bbls..... | 10 | Cooking ranges, tons..... | 577 |
| Car wheels, tons..... | 1,000 | Flour, bbls..... | 4,557 |
| Grindstones, tons..... | 84 | Miscellaneous merchandise, tons.. | 14 |
| Horse..... | 1 | Gasoline, bbls..... | 5 |
| Refined oil, bbl..... | 15 | P. L. oil, bbls..... | 520 |
| Electric light carbons, boxes..... | 11 | Fertilizer, tons..... | 2 |
| Copperas, bbls..... | 100 | Stone, cu. ft..... | ,518 |
| Lard oil, bbls..... | 140 | Coal oil, bbls..... | 8,226 |

ENTERED, FOREIGN, CLEVELAND.

| | | | |
|-----------------------------------|--------|----------------------------|-----------|
| Cedar posts..... | 3,800 | Telegraph poles..... | 320 |
| Miscellaneous merchandise, tons.. | 9 | Shingles | 1,263,000 |
| Cedar railroad ties..... | 64,133 | Lath | 3,149,000 |
| Potatoes, bu..... | 280 | White pine lumber, ft..... | 2,416,000 |
| Phosphate, tons..... | 570 | Salt, sacks..... | 3,000 |
| Pulp wood, cords..... | 215 | Fence lath, pieces..... | 150 |
| Horses | 5 | Bass-wood lumber, ft..... | 393,000 |
| Ice, tons..... | 150 | Lumber, ft..... | 726,000 |
| Spikes, kegs | 600 | Carriages | 3 |
| Ore, tons..... | 398 | Feldspar, tons..... | 360 |

CLEARED, FOREIGN, ASHTABULA.

| | |
|------------------|--------|
| Coal, tons | 25,173 |
|------------------|--------|

ENTERED, FOREIGN, ASHTABULA.

| | | | |
|----------------|-----|--------------------------|--------|
| Ice, tons..... | 301 | \| Cedar railroad ties..... | 31,080 |
|----------------|-----|--------------------------|--------|

CLEARED, FOREIGN, FAIRPORT.

| | | | |
|-----------------|-------|------------------------|-----|
| Coal, tons..... | 8,408 | \| Block stone, tons..... | 100 |
|-----------------|-------|------------------------|-----|

CLEARED, FOREIGN, LORAIN.

| | |
|------------------|--------|
| Coal, tons | 16,701 |
|------------------|--------|

MAGNITUDE OF THE IRON ORE TRAFFIC.

An investment of \$175,394,985 seems almost beyond the proportions of any one closely connected line of commerce, but such are the figures representing the capital involved on July 1st, 1892, in mining and transporting by lake and rail the output of the Lake Superior iron mining district. The sale and movement of every ton of ore from this district is conducted by sales agents in Cleveland, who are also owners of the mines to a large extent. Here the docks at all Lake Erie ports, excepting Buffalo and Erie, are controlled, and here is owned full 80 per cent. of the vessel property engaged in this commerce, which forms the largest single item in the lake traffic. This country consumed in 1890, 17,500,000 gross tons of iron ore. Of this amount, 1,246,830 tons were imported and 16,253,170 tons were of home production. Lake Superior mines produced in the same year 9,003,701 gross tons, or more than one-half the raw material for a nation that leads the world in the output of pig iron, Bessemer steel and steel rails. This statement is in itself enough to show the relation the city bears to the iron industry, whose prosperity is most often used to serve as a measure of the general business prosperity of the country. More than sixty-four million gross tons (1891 inclusive) has been produced in this iron region since 1855, and the ore is the finest in the world. The average value of iron ore mined in the United States in 1889 on cars and carts at the mines is given by the Census Bureau at \$2.30 per ton. The value of such ore at Lake Superior mines averaged \$2.66 per ton, while the ores of Alabama, Tennessee, Virginia and West Virginia averaged only \$1.20 per ton in value at the mines.

Hon. George H. Ely, of Cleveland, who has been largely interested in the development of this iron mining industry, especially the Vermilion range of Minnesota, and who is a recognized authority on iron mining matters, presents the

figures given above regarding the magnitude of investments in Lake Superior ore mining and its distribution. He makes the following division of the capital :

CAPITAL IN MINING AND DISTRIBUTION, LAKE SUPERIOR DISTRICT, 1892.

| | |
|---|-------------------------|
| Capital in mines in the four Lake Superior districts in 1889, as per United States Census..... | \$54,825,122 |
| Increase to July 1, 1892..... | 15,000,000 \$69,825,122 |
| Capital in docks and their equipments at Lake Superior and Lake Michigan ports, built and used exclusively for shipping ore, (official)..... | \$ 9,885,665 |
| Capital employed exclusively in railroad transportation of ore from mines to shipping ports on Lake Superior and Lake Michigan, (official)..... | \$27,014,594 |
| Floating capital on the Lakes, employed exclusively in ore transportation, from Upper Lake to Lower Lake ports, (estimated) | \$29,933,107 |
| Capital in docks, and in their equipments, for receiving and for- warding ore exclusively, at Lake Erie ports between Toledo and Buffalo, inclusive of both, (official) | \$12,392,880 |
| Capital employed exclusively in railroad transportation of ore, inland to mills and furnaces from Lake Erie ports, (official) | \$26,343,617 |
| Total..... | \$175,394,985 |

Four mining districts from which this traffic is drawn are the Marquette range in Michigan, Menominee in Michigan and Wisconsin, Gogebic in Wisconsin and Michigan, and Vermilion in Minnesota. About one hundred mining locations are now in operation in these districts. A fifth district, the Mesaba in Minnesota, promises to add more than half a million tons to next year's production from the older ranges. Nearly all the product of these ranges is transported to the furnaces an average distance of 600 miles by water. Summaries here printed show the total output of this great mining region and the movement through Cleveland and other Lake Erie ports to the iron furnaces of Ohio, Pennsylvania and the East :

TOTAL IRON ORE PRODUCTION, GROSS TONS, OF LAKE SUPERIOR MINES BY RANGES PRIOR TO 1878, AND FOR EACH YEAR FROM 1878 TO 1891.

| RANGE. | Prior to 1878 | 1878 | 1879 | 1880 | 1881 |
|----------------|---------------|-----------|-----------|-----------|-----------|
| Marquette..... | 10,471,249 | 1,033,082 | 1,130,019 | 1,384,010 | 1,579,834 |
| Menominee..... | 4,593 | 78,028 | 245,672 | 524,735 | 726,571 |
| Gogebic..... | | | | | |
| Vermilion..... | | | | | |
| Total..... | 10,475,842 | 1,111,110 | 1,375,691 | 1,908,745 | 2,306,505 |
| RANGE. | 1882 | 1883 | 1884 | 1885 | 1886 |
| Marquette..... | 1,829,394 | 1,305,425 | 1,558,033 | 1,430,422 | 1,627,383 |
| Menominee..... | 1,136,018 | 1,047,863 | 895,634 | 690,435 | 880,006 |
| Gogebic..... | | | 1,022 | 119,590 | 756,237 |
| Vermilion..... | | | 62,124 | 225,484 | 304,396 |
| Total..... | 2,965,412 | 2,353,288 | 2,516,813 | 2,465,931 | 3,568,022 |
| RANGE. | 1887 | 1888 | 1889 | 1890 | 1891 |
| Marquette..... | 1,851,717 | 1,918,672 | 2,634,817 | 2,993,664 | 2,496,050 |
| Menominee..... | 1,199,343 | 1,191,097 | 1,796,764 | 2,282,237 | 1,800,293 |
| Gogebic..... | 1,285,265 | 1,433,689 | 2,016,391 | 2,847,786 | 1,821,309 |
| Vermilion..... | 394,252 | 511,953 | 844,782 | 880,014 | 894,281 |
| Total | 4,730,577 | 5,056,411 | 7,292,754 | 9,003,701 | 7,011,933 |

TOTAL BY RANGES SINCE THE OPENING OF LAKE SUPERIOR REGION.

| Ranges. | Gross Tons. |
|----------------|-------------|
| Marquette..... | 35,234,543 |
| Menominee..... | 14,493,436 |
| Gogebic..... | 10,281,923 |
| Vermilion..... | 4,117,186 |
| Total..... | 64,127,088 |

RECEIPTS OF IRON ORE BY WATER AT LAKE ERIE PORTS FOR THE YEARS 1883 TO 1891, INCLUSIVE.

| Years. | Gross Tons. | Years. | Gross Tons. |
|------------|-------------|------------|-------------|
| 1883:..... | 1,692,689 | 1888:..... | 3,783,659 |
| 1884:..... | 1,841,877 | 1889:..... | 5,856,344 |
| 1885:..... | 1,503,969 | 1890:..... | 6,874,664 |
| 1886:..... | 2,267,215 | 1891:..... | 5,032,190 |
| 1887:..... | 3,441,259 | | |

SHIPMENTS OF IRON ORE FROM LAKE ERIE PORTS TO FURNACES BY RAIL, 1886 TO 1891, INCLUSIVE.

| Years. | Gross Tons. | Years. | Gross Tons. |
|-----------|-------------|-----------|-------------|
| 1886..... | 3,493,188 | 1889..... | 6,784,511 |
| 1887..... | 4,398,857 | 1890..... | 8,155,324 |
| 1888..... | 4,600,434 | 1891..... | 5,324,682 |

IRON ORE RECEIPTS BY WATER OF THE SEVERAL LAKE ERIE PORTS FOR THE YEARS 1888 TO 1891, INCLUSIVE.

| Port of | Gross Tons. 1888. | Gross Tons. 1889. | Gross Tons. 1890. | Gross Tons. 1891. |
|-----------------|----------------------|----------------------|----------------------|----------------------|
| Toledo..... | 75,601 | 82,961 | 164,295 | 200,890 |
| Sandusky..... | 154,924 | 186,682 | 174,596 | 106,907 |
| Huron..... | 4,351 | 680 | 1,200 | 14,910 |
| Lorain..... | 197,000 | 280,000 | 280,450 | 266,000 |
| Cleveland..... | 971,775 | 1,742,415 | 1,945,492 | 1,257,775 |
| Fairport..... | 611,140 | 829,121 | 1,096,408 | 699,434 |
| Ashtabula..... | 1,288,530 | 1,963,490 | 2,176,730 | 1,599,785 |
| Erie..... | 240,338 | 373,595 | 487,493 | 393,759 |
| Buffalo..... | 240,000 | 298,000 | 548,000 | 421,890 |
| Tonawanda..... | | | | 70,840 |
| Totals..... | 3,783,659 | 5,856,344 | 6,874,664 | 5,032,190 |

The difference between the total production of the mining region and receipts at Lake Erie ports for the different years, shown in the foregoing tables, represents the ore going to the Chicago furnace district and a small amount consumed at Detroit. The western furnaces show a big increase in consumption during late years, but the ores for these furnaces are also carried almost entirely by water, and Cleveland vessel owners are in control of the great bulk of the business. As showing the small percentage of this mineral product shipped to furnaces by rail, it may be noted that of the 9,003,701 tons produced in 1890, 8,155,000 tons sought transportation by water.

THE BITUMINOUS COAL TRADE.

In Michigan, Wisconsin, and the north-western country tributary to Duluth, Superior, Minneapolis and St. Paul, is found one of the best markets for the high-grade steam coal of Ohio, West Virginia and the Pittsburgh district of Pennsylvania. Railways traversing the vast grain fields of Minnesota and the Dakotas depend almost entirely on these mining districts for their fuel supplies, and as in the case of iron ore, Cleveland is the headquarters for producers and sales agents who hold large terminal interests here and at neighboring ports in conjunction with the railways. Aside from the very large consumption of soft coal here for domestic purposes and by the 2,300 manufacturing establishments in the city, there was shipped by lake to Milwaukee, Chicago, Duluth, Superior and various other upper lake ports from Ohio ports, in 1890, 3,107,816 net tons, and in 1891, 3,152,756 net tons of bituminous coal. This does not include an amount of fuel proportionately large consumed by steam vessels engaged in the lake trade. It is cargo coal, carried at rates of freight that alone permit of such a traffic in a cheap article of fuel over thousands of miles of territory. The distance from Cleveland to Duluth and Superior at the head of Lake Superior is a little less than 1,000 miles, and yet the ruling rate of freight on coal to these ports during the present season has been 40 cents a ton, or less than the charge for hauling by horse and wagon a ton of coal from one section of the city to another. This coal is carried by vessels on return trips to the upper lakes for grain and iron ore, and the low rate of freight is made possible by machinery at the terminal points capable of loading a steamer of 2,500 tons in a single day and unloading the same boat with little difference in time. The movement of bituminous coal from Ohio ports by Lake during the calendar years 1890 and 1891 is shown in the following table :

MOVEMENT OF BITUMINOUS COAL, NET TONS, BY LAKE,
1890 AND 1891.

(From reports of Lake Coal Shippers' Association.)

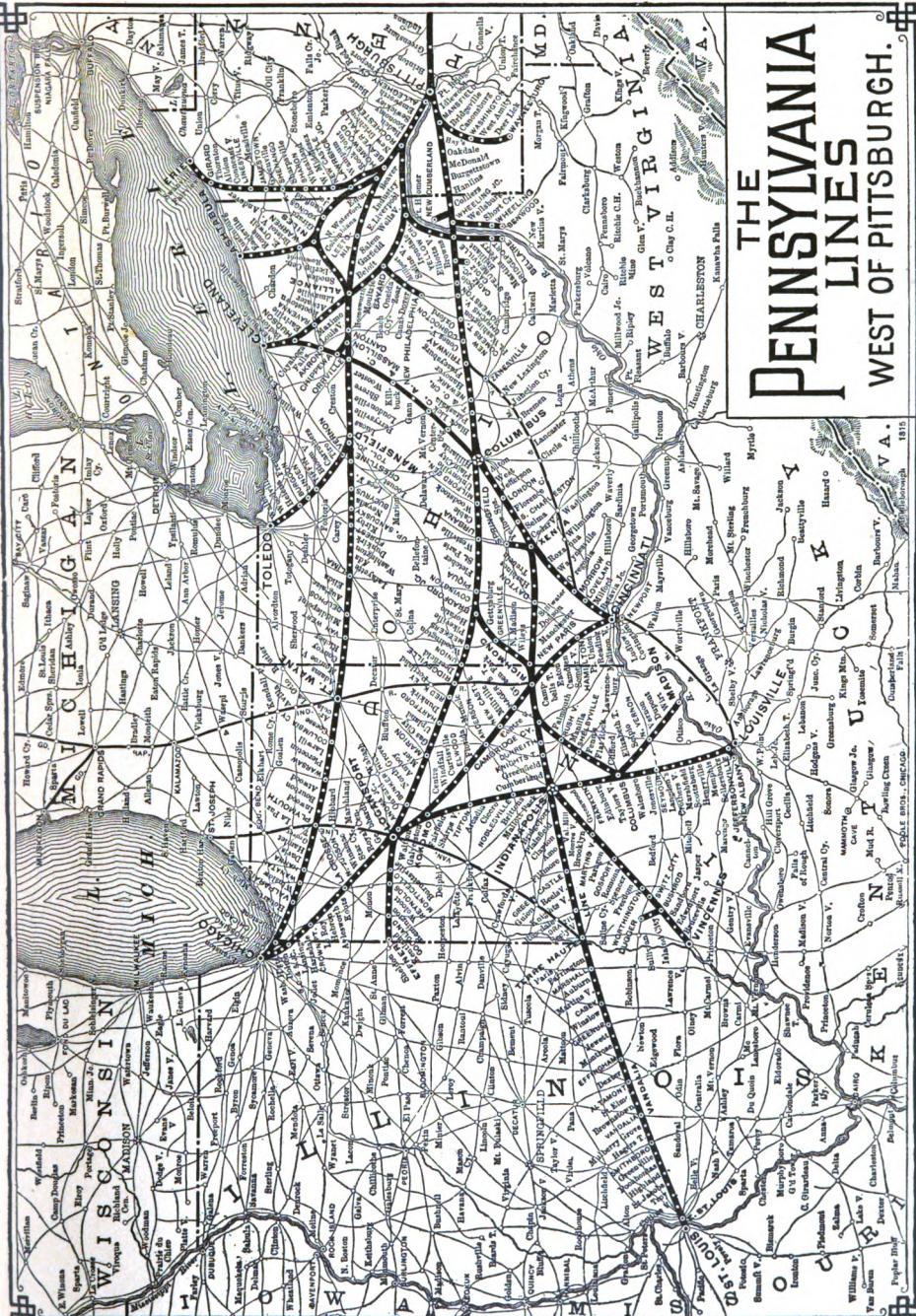
| LAKE ERIE PORTS. | Ohio Coal. 1891. | Pennsyl- vania Coal. 1891. | West Vir- ginia Coal. 1891. | Total. 1891. | Total. 1890. |
|------------------|---------------------|----------------------------------|-----------------------------------|-----------------|-----------------|
| Erie..... | | 89,310 | ..... | 89,310 | 129,904 |
| Ashtabula..... | | 386,375 | ..... | 386,375 | 452,894 |
| Airport..... | | 66,914 | ..... | 66,914 | 63,360 |
| Cleveland..... | 290,585 | 601,902 | 124,000 | 1,016,487 | 922,536 |
| Lorain..... | 253,539 | 8,447 | 26,825 | 288,811 | 227,181 |
| Huron..... | 200,000 | ..... | ..... | 200,000 | 150,000 |
| Sandusky..... | 157,571 | ..... | ..... | 157,571 | 271,540 |
| Toledo..... | 947,288 | ..... | ..... | 947,288 | 891,501 |
| Total..... | 1,848,983 | 1,152,948 | 150,825 | 3,152,706 | 3,107,816 |

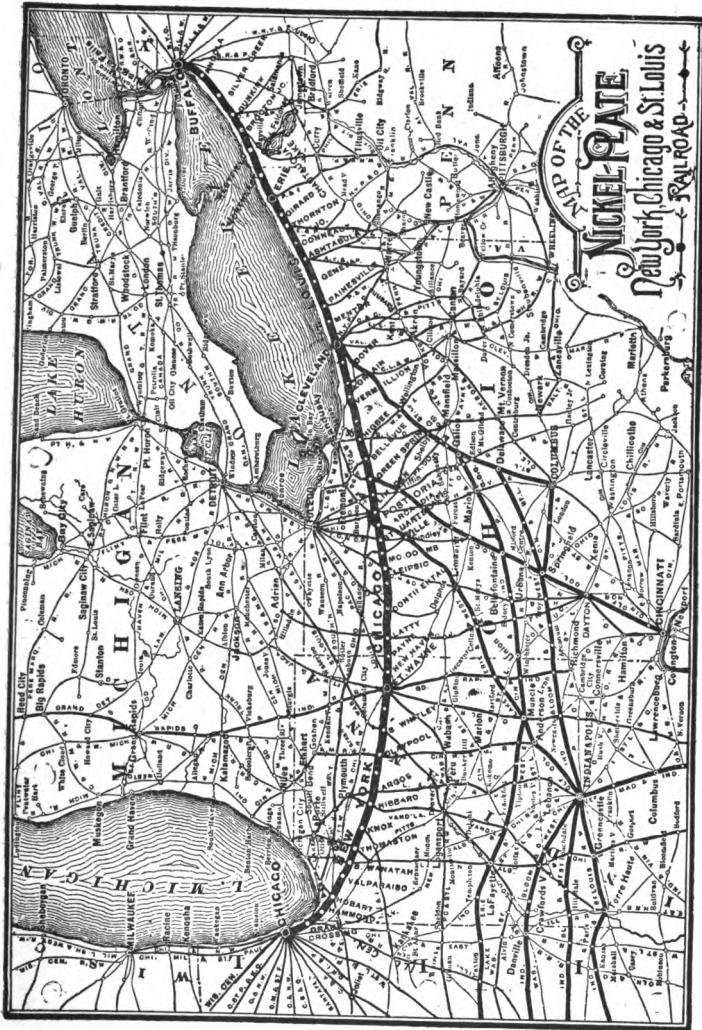
Definite figures regarding the local consumption of soft coal are not at hand, but the amount used for both manufacturing and domestic purposes is very large. No less than 500,000 tons of coke are also consumed annually by iron furnaces and foundries.

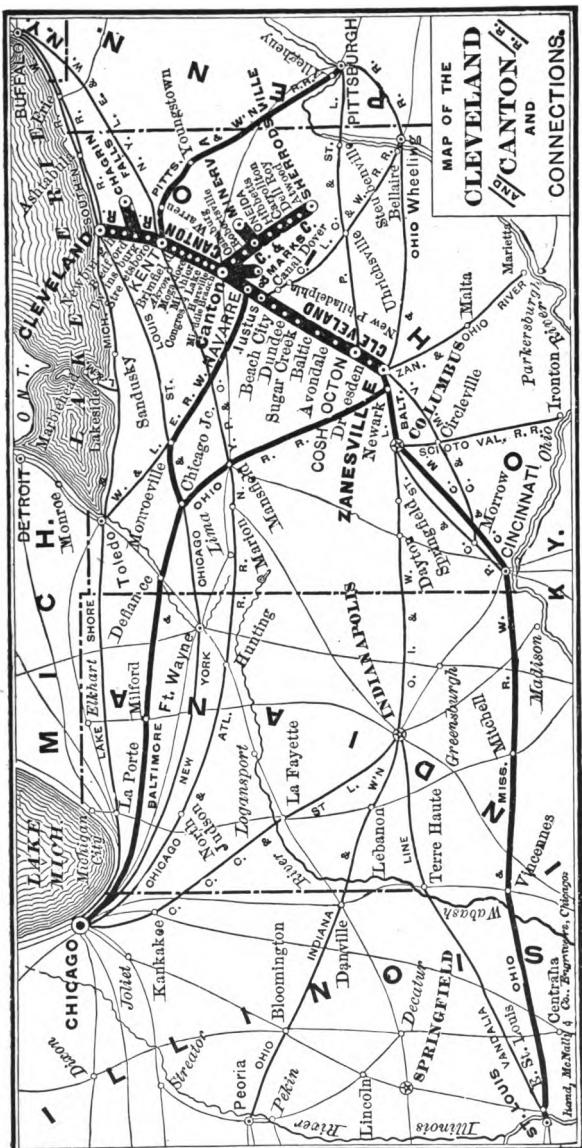
RAILWAY TRAFFIC IN 1891.

As a fair indication of the city's importance as a distributing point for freight of all kinds, attention is directed to a classification on an accompanying page showing the total outward freight movement from Cleveland during the calendar year 1891 over eleven lines of railway having direct entrance into the city. The aggregate outward movement alone is 5,535,332 net tons. These figures are furnished by the auditors of the different roads, and are absolutely correct, as the statements show in detail the amounts of various commodities shipped over the several lines. Favored by an enormous business, through lake connections, in such coarse freight as coal and iron ore, these railways are enabled to give to the manufacturer or merchant the very lowest rates on raw and finished materials of all kinds.

THE PENNSYLVANIA LINES WEST OF PITTSBURGH.

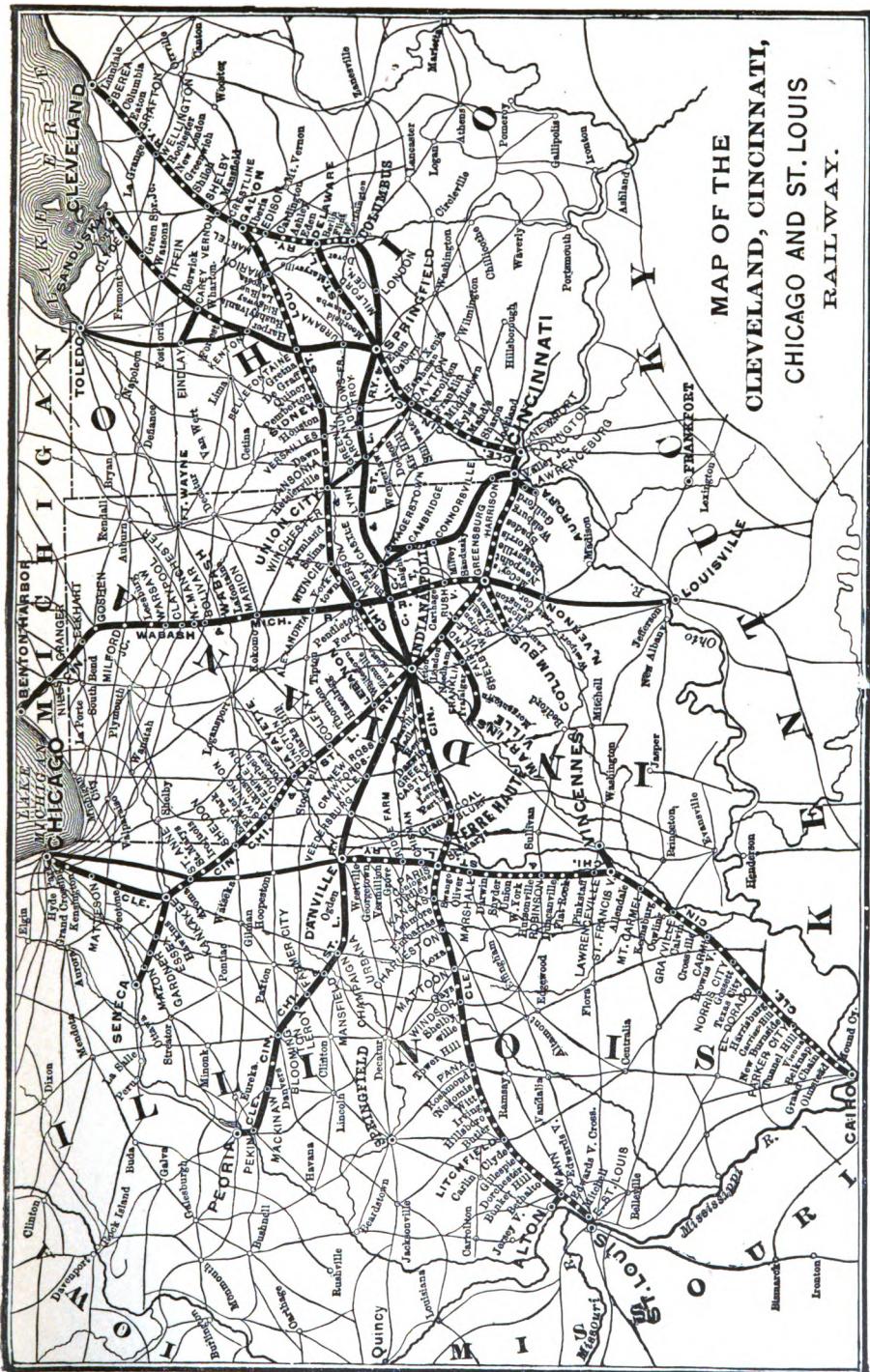




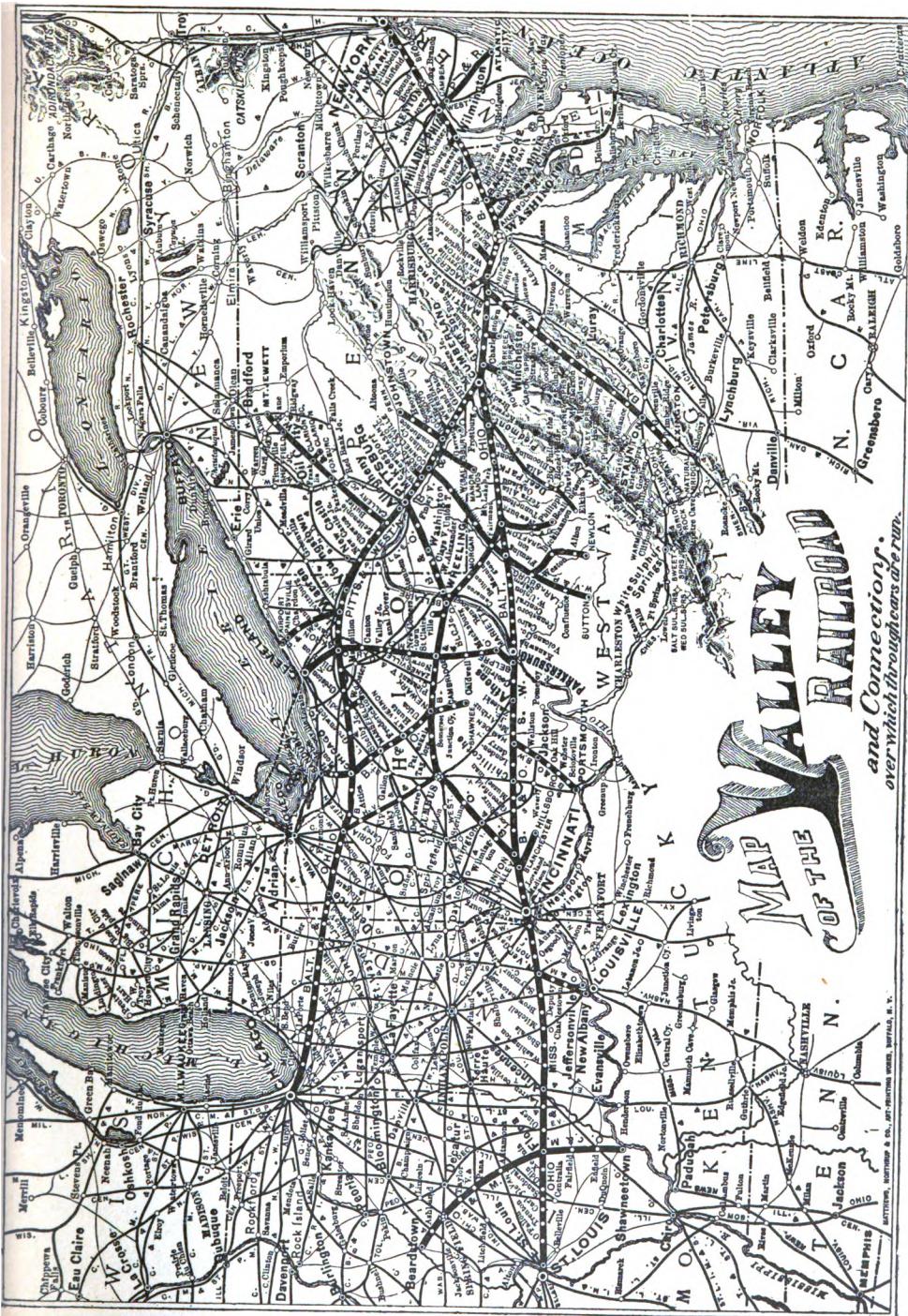


ERIE LINES.

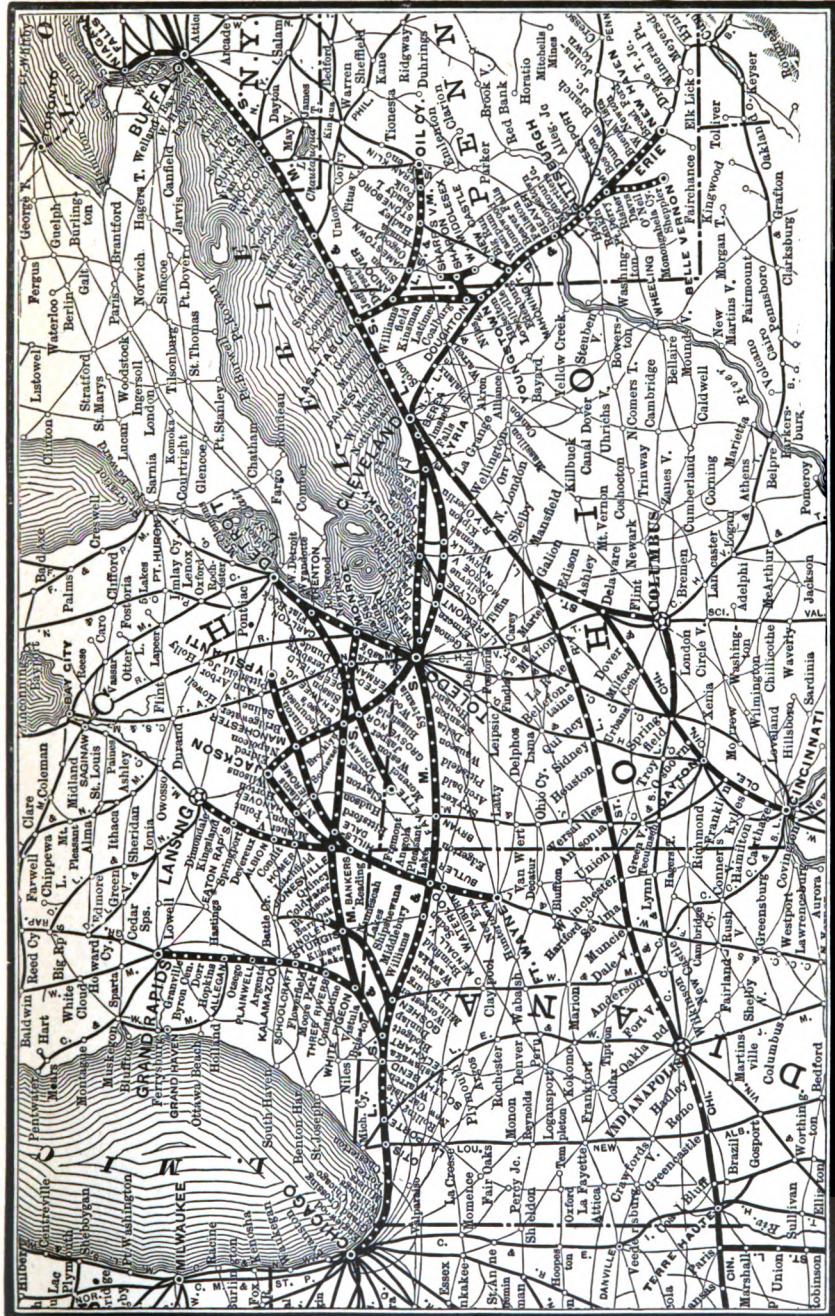




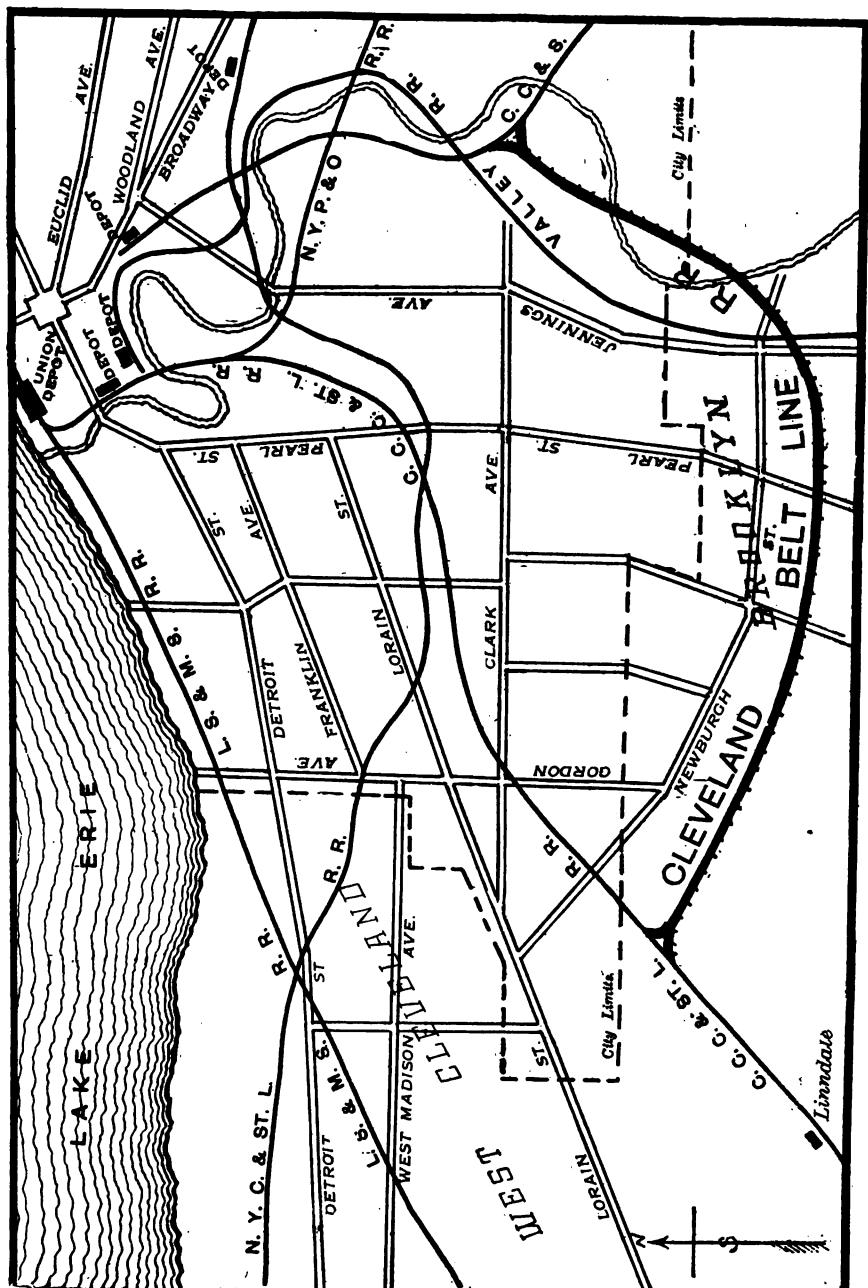
MAP OF THE
CLEVELAND, CINCINNATI,
CHICAGO AND ST. LOUIS
RAILWAY.



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MAP OF THE LAKE SHORE & MICHIGAN SOUTHERN RAILROAD.



CLEVELAND BELT LINE RAILROAD.

The city's command of facilities for transportation may be better understood by enumerating the railways running into and centering here. They are the Lake Shore & Michigan Southern Railway; New York, Chicago & St. Louis Railroad; Cleveland, Cincinnati, Chicago & St. Louis Railway; Valley Railway; Cleveland, Canton & Southern Railway; New York, Pennsylvania & Ohio Railway, operated by the New York, Lake Erie & Western Railroad; Cleveland & Pittsburgh Railroad, operated by the Pennsylvania Company; Cleveland, Akron & Columbus Railway; Cleveland, Lorain & Wheeling Railroad; Baltimore & Ohio and Cleveland & Marietta Railway coming in over the Valley Railway. The census of 1890 shows that these railroads operated 5,237 miles of working line, that is exclusive of everything in the nature of switches and yard lines, and that they carried 37,829,711 tons of freight. Their gross receipts ran up to \$56,087,349, while to operate them it required an expenditure of \$47,467,744. They furnished employment to 37,684 employes. The general offices of the Lake Shore, New York, Chicago & St. Louis, Valley, Cleveland, Canton & Southern and Cleveland, Lorain & Wheeling companies are located here, and the great bulk of business pertaining to the management of the Cleveland & Pittsburgh and N. Y., P. & O., leased lines, is also conducted in the city.

Three of the largest Vanderbilt lines bear important relations to Cleveland, two of them having their general offices here and the third making the city a terminus. The most important of these is the Lake Shore & Michigan Southern Railway, one of the great trunk lines of the country, operating 2,512 miles of track. Through purchase, this company has gained control of a number of branch lines in Southern Michigan, which places that State and a great north-western territory beyond it within easy reach of the merchant and manufacturer. The New York, Chicago & St. Louis, which has been doing a heavy and increasing freight business during the past ten years, in addition to adding to the trunk line facilities for shippers, opens connections for a number of prosperous towns through Ohio, Indiana and Illinois.

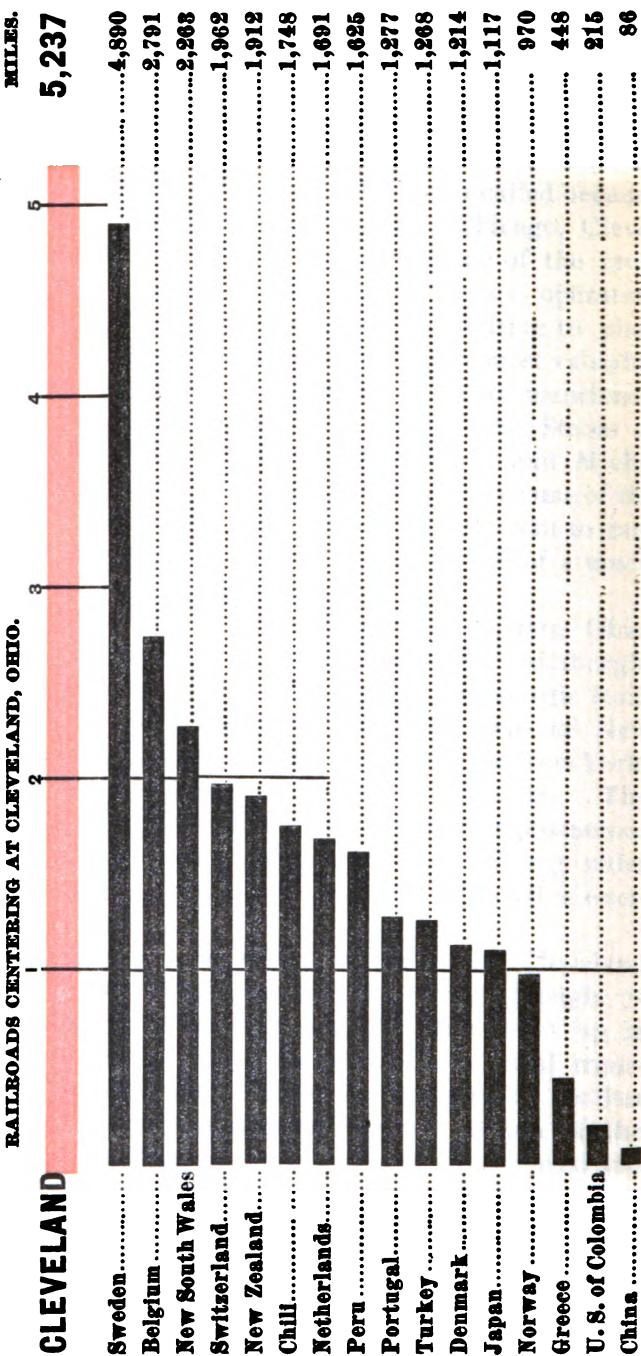
This line operates 693 miles of track and its immense equipment in rolling stock is especially designed for freight business. The Cleveland branch of the Cleveland, Cincinnati, Chicago & St. Louis Railway, or Big Four, (so called because it connects the four largest western cities, Chicago, Cleveland, Cincinnati and St. Louis) is a part of one of the most extensive railway systems in the United States, operating and controlling 2,984 miles of railway. In addition to placing Cleveland in reach of the southwest, it is a most valuable connection south and west. The three systems mentioned make a network of railways covering directly the States of New York, Pennsylvania, Ohio, Indiana, Illinois and Michigan, and being in touch with the Great Lakes at some of the largest ports. This combination would be sufficient to care for the business and act as feeders for the growth of a much larger city, but there are other lines.

The great coal fields of Pennsylvania and eastern Ohio, and the iron districts of the Mahoning Valley and Pittsburgh, are opened to the city by the Cleveland & Pittsburgh Railroad, operated by the Pennsylvania Company, and the New York, Pennsylvania & Ohio, which is a part of the New York, Lake Erie & Western system, with all its branches. The Cleveland & Pittsburgh, which is one of the most prosperous branches among the Pennsylvania lines, operates 223 miles of road. Its traffic in pig iron, iron ore and coal is enormous.

The Valley Railway of Ohio, which is the Cleveland connection of the Baltimore & Ohio, runs through 75 miles of the manufacturing portion of the State, built up in early years through the advantages afforded in canal transportation. The Cleveland, Canton & Southern is another valuable short line reaching a prosperous portion of the State, and engaging largely in the transportation of coal and agricultural products.

On every side, except the north, which is cared for by the greatest inland navigation on the globe, Cleveland is amply provided with the best of railway facilities.

RAILROAD MILEAGE OF VARIOUS COUNTRIES CONTRASTED WITH THAT OF THE
ROADS CENTERING AT CLEVELAND, OHIO.



CLASSIFICATION SHOWING THE OUTWARD MOVEMENT OF
FREIGHT FROM CLEVELAND, NET TONS, OVER ALL
RAILWAYS, DURING THE CALENDAR YEAR 1891.

| FREIGHT CLASSIFICATION. | Lake Shore & Michigan Southern Railway Co. | Pennsylvania Co., Operating Cleveland & Pittsburg Ry. | N. Y.: L. E. & W. R. Co., Operating N. Y. P. & O. Ry. | Cleveland, Chicago & St. Louis Railway Co. | Valley Railway Co. | New York, Chicago & St. Louis Railroad Co. | Cleveland, Canton & Southern Railroad Co. | Totals, tons of 2,000 pounds. |
|--|---|---|---|--|--------------------|---|--|-------------------------------------|
| Grain..... | 238,024 | 3,242 | 32,080 | 51 | 9,558 | 18,096 | ..... | 301,051 |
| Flour and other mill products..... | 128,533 | 7,196 | 18,970 | 2,517 | 4,601 | 20,255 | ..... | 182,072 |
| Hay and straw..... | 2,096 | 971 | ..... | ..... | 228 | 575 | ..... | 3,870 |
| Tobacco..... | 14 | 32 | ..... | 201 | 126 | 337 | ..... | 710 |
| Cotton..... | 2 | ..... | ..... | ..... | 63 | 6,156 | ..... | 6,221 |
| Other agricultural products, fruits, vegetables, etc..... | 91,027 | 2,615 | 11,234 | 7,544 | 2,331 | 1,555 | 2,198 | 118,504 |
| Live stock..... | 126,479 | 786 | 947 | 705 | 235 | 13,309 | ..... | 142,461 |
| Dressed meats and dressed hogs..... | 1,834 | 742 | 1,208 | 1,510 | 535 | ..... | ..... | 5,829 |
| Provisions..... | ..... | 759 | 7,308 | 302 | 293 | 1,846 | 5,346 | 5,346 |
| Other packing house products..... | 45,630 | 1,373 | 882 | 1,007 | 453 | 3 ¹ | ..... | 10,508 |
| Poultry, game and fish..... | 37 | 246 | ..... | ..... | 108 | 413 | 804 | 49,426 |
| Wool..... | 98 | 2,901 | 1,678 | 676 | 667 | ..... | ..... | 6,020 |
| Hides..... | 707 | 139 | 617 | ..... | ..... | 2,242 | 341 | 4,046 |
| Other animal products..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Lumber and other forest prod- ucts..... | 171,754 | 68,010 | 61,237 | 59,948 | 23,590 | 26,471 | 27,564 | 438,574 |
| Anthracite coal..... | 6,960 | ..... | 58,430 | 699 | ..... | ..... | ..... | 66,089 |
| Bituminous coal..... | 54,180 | 24,705 | ..... | 15,333 | 2,460 | 9,622 | ..... | 104,300 |
| Coke..... | 316,901 | 10,967 | 180 | 152 | 1,955 | 1,064 | ..... | 330,219 |
| Ores..... | 559,740 | 730,442 | 2,416 | 78,541 | 188 | 3,821 | 1,405,148 | ..... |
| Stone, sand, clay and like articles..... | 27,479 | 73,532 | 9,798 | 19,676 | 16,359 | 5,226 | ..... | 152,080 |
| Petroleum and other oils..... | 70,882 | 101,862 | 35,165 | 18,468 | 8,637 | 9,770 | ..... | 244,734 |
| Salt..... | 19,729 | ..... | 2,643 | 25,163 | 1,580 | 958 | ..... | 50,073 |
| Sugar..... | 336 | 2,897 | 46,859 | 957 | 146 | ..... | ..... | 51,195 |
| Fertilizers..... | ..... | ..... | ..... | 8,666 | ..... | ..... | ..... | 8,666 |
| Naval stores..... | ..... | 7 | 856 | 777 | ..... | ..... | ..... | 1,640 |
| Soda ash, caustic soda and acid | ..... | ..... | ..... | 17,965 | ..... | ..... | ..... | 17,965 |
| Pig and bloom iron..... | 28,025 | 101,477 | 18,625 | 1,863 | 58,499 | 3,620 | ..... | 212,109 |
| Iron and steel rails..... | 12,100 | 1,210 | 317 | 1,410 | 739 | 579 | ..... | 16,355 |
| Other castings and machinery | 242,295 | 10,604 | 2,573 | 53,360 | 11,428 | 3,620 | ..... | 323,880 |
| Bar and sheet metal..... | 4,058 | 19,831 | 1,200 | 25,418 | 1,020 | 3,824 | ..... | 53,354 |
| Plaster, lime, cement, brick, tile and sewer pipe..... | 48,008 | 20,035 | 7,978 | 16,838 | 7,781 | 7,264 | ..... | 107,904 |
| Agricultural implements, wagons, carriages, tools, etc. | 31,260 | 546 | 809 | 6,551 | 705 | 2,158 | ..... | 42,029 |
| Wines, liquors and beer..... | ..... | 6,634 | 6,614 | 2,165 | 2,263 | 1,344 | ..... | 16,020 |
| Household goods and furni- ture..... | ..... | 1,373 | 818 | 554 | 619 | 922 | ..... | 4,286 |
| Earthen and glassware..... | ..... | ..... | ..... | ..... | 527 | ..... | 61,086 | ..... |
| Locomotive engines and cars..... | ..... | ..... | ..... | ..... | ..... | 61,086 | ..... | 61,086 |
| Manufactured articles, mis- cellaneous..... | 191,656 | 14,459 | ..... | ..... | 959 | ..... | 10,833 | 217,907 |
| Merchandise..... | 267,135 | 19,962 | 98,496 | 135,916 | 6,981 | 20,547 | 5,240 | 554,277 |
| Miscellaneous..... | 12,255 | 56,574 | 6,001 | 503 | 27,190 | 272 | 14,209 | 117,004 |
| Totals, tons of 2,000 lbs..... | 1,938,345 | 1,325,116 | 1,174,645 | 503,394 | 300,097 | 229,509 | 64,206 | 5,535,332 |

NOTE—In the classification of the Lake Shore & Michigan Southern Railway Company is included the outward business of the Cleveland, Lorain & Wheeling Railway, which enters Cleveland over the Lake Shore. The Baltimore & Ohio and Cleveland & Marietta roads both gain entrance to Cleveland over the Valley Railway, and the statement of the latter company includes the outward business of the two former. The Cleveland, Canton & Southern Railway Company, which makes a light showing in outward-bound freight, carries to the city large quantities of bituminous coal and farm products.

OHIO CANAL TRAFFIC.

Of late years, Cleveland has derived little benefit from the branch of the state canals terminating here. The aggregate receipts and shipments by canal for the calendar year 1891 is less than 60,000 net tons and the business is made up mainly of a few lines of coarse freight. Two lines of railway operating entirely within the state, the Valley Railway of Ohio and the Cleveland, Canton & Southern, have for several years past been caring for the traffic that made the canal an important adjunct to the city in its early history. The total canal business here in 1891 is shown in the following table:

| <i>Commodities.</i> | <i>Receipts.</i> | <i>Shipments.</i> |
|---------------------------------|------------------|-------------------|
| Coal, bituminous, net tons..... | 23,050 | 6,958 |
| Coal, anthracite, net tons..... | ..... | 491 |
| Lumber, feet..... | 21,000 | 14,464,000 |
| Shingles ..... | ..... | 516,000 |
| Lath ..... | ..... | 4,320,000 |
| Salt, barrels..... | ..... | 711 |
| Refined Oil, barrels..... | ..... | 92 |
| Lime, barrels..... | ..... | 209 |
| Hay and Straw, net tons..... | ..... | 10 |

The causes leading up to this decline in canal traffic are the same here as in other states of the Union. Unlike the St. Mary's Falls canal, the Welland and others, which connect great bodies of water and admit of the passage of large vessels, these state canals are unable to compete with the great progress made by railways in transportation facilities. The city has, however, lost nothing on this account. New towns tributary to the railways just mentioned have sprung up along the line of the canal, and productive industries started by facilities first afforded by the small waterway have grown to many times their former proportions.

COMMERCE OF THE GREAT LAKES.

A statistical publication regarding industrial progress in Cleveland would hardly be complete without reference to commerce generally on the lakes. Without the lakes as a means of cheap transportation, the ore business of Lake Superior could not have been developed. The product of Ohio and Pennsylvania coal mines, now distributed throughout the Northwest, could not be transported so great a distance except by water. These commodities, so important to the welfare of the city, could not be brought together at the lowest rates of transportation by rail.

These lakes contain more than one-half the area of all the fresh water of the globe. The water area is 95,460 square miles, and the drainage area 150,000 square miles. The coast line in the United States is 3,075 miles. Eight states, having a population of 26,029,533, border on these lakes.

During 234 days of navigation in 1890, there was carried on these waters in the United States foreign trade 2,003,047 net tons of cargo and in the coastwise trade of the United States 28,295,959 net tons of cargo, or an aggregate cargo tonnage of 30,299,006 tons, an increase of 2,838,746 tons over the tonnage of 1889, as reported by the Census Bureau. The total traffic on the lakes had not been compiled previous to 1889.

The estimated value of this freight tonnage in 1890 was \$342,522,290. Following is a summary of the entire lake traffic in 1890:

SUMMARY OF LAKE TRAFFIC FOR 1890.

(From Bureau of Statistics, Treasury Department.)

| | <i>Net Tons.</i> |
|---|------------------|
| Freight carried in United States coastwise trade..... | 28,295,959 |
| Freight carried in United States foreign trade..... | 2,003,047 |
| Total freight carried to or from United States ports..... | 30,299,006 |

DIVISION OF COASTWISE TRAFFIC.

| | <i>Net Tons.</i> |
|-----------------------|------------------|
| Flour and grain | 4,271,346 |
| Iron ore..... | 9,132,761 |

| | <i>Net Tons.</i> |
|---------------------------------|-------------------|
| Coal | 5,735,299 |
| Lumber and lumber products..... | 6,869,660 |
| All other merchandise..... | 2,286,893 |
| Total | 28,295,959 |

UNITED STATES TRAFFIC ON DETROIT RIVER.

| | <i>Freight Tonnage, Net.</i> |
|----------------------|----------------------------------|
| Coastwise, down..... | 15,344,433 |
| Coastwise, up..... | 5,771,164 |
| Foreign, down..... | 463,282 |
| Foreign, up..... | 309,593 |
| Total | 21,888,472 |

If we analyze still further the domestic, or United States coastwise portion of this traffic, with a view to ascertaining what is the principal freight transported, we get the following:

TABLE SHOWING, BY COMMODITIES, THE AGGREGATE FREIGHT CARRIED IN THE UNITED STATES COASTWISE TRADE ON THE GREAT LAKES FOR THE YEAR 1890.

(From Bureau of Statistics, Treasury Department.)

| COMMODITY. | AMOUNT. | COMMODITY. | AMOUNT. |
|----------------|------------------|---------------------------------------|------------------|
| | <i>Net Tons.</i> | | <i>Net Tons.</i> |
| Wheat..... | 807,906 | Copper..... | 40,894 |
| Corn | 1,769,138 | Salt..... | 280,187 |
| Oats | 348,216 | Cement | 98,937 |
| Barley | 141,197 | Stone | 323,890 |
| Rye..... | 42,609 | Lumber | 5,843,421 |
| Flaxseed | 79,086 | Shingles..... | 134,461 |
| Flour | 922,056 | Lath | 56,660 |
| Millstuff..... | 161,138 | Miscellaneous lumber products..... | 835,118 |
| Coal | 5,735,299 | Miscellaneous freight..... | 1,414,750 |
| Iron Ore..... | 9,132,761 | | |
| Pig Iron..... | 128,145 | | |
| | | Total | 28,295,959 |

The vessel tonnage passing through the Detroit River is about equal to the vessel tonnage of the Atlantic coast engaged in the foreign trade, about five times as large as the total tonnage of either the Gulf or Pacific coast, and over two-thirds of the total tonnage of the entire seaboard of the United States engaged in the foreign trade. The vessel tonnage entrance, and clearances in the foreign trade at Lon-

don in 1890 was 13,480,769; of Liverpool for the same year, 10,941,800, and of these two great maritime ports combined 24,422,568. It will be seen then that the vessel tonnage passing through the Detroit River in 1890 was over 8,000,000 of tons in excess of London, about double that of Liverpool, and nearly equal to the two combined. Another very striking comparison is afforded in the following table, showing the registered vessel tonnage passing through the Detroit River, the Straits of Mackinaw, and the St. Mary's Falls Canal during the season of 1890, compared with the registered vessel tonnage passing through the Suez Canal:

| | <i>Registered Vessel Tonnage, Net.</i> |
|--|--|
| Suez Canal, official report, 1890..... | 6,890,014 |
| St. Mary's Falls Canal, official report, 1890..... | 8,454,435 |
| Straits of Mackinaw (estimated), 1890..... | 11,000,000 |
| Detroit River, official report, 1890..... | 21,684,000 |

It will be remembered that the St. Mary's Falls Canal and the Detroit River were open for navigation during the season of 1890 two hundred and twenty-eight days, while the Suez Canal was open for navigation to ships of all nations for the three hundred and sixty-five days of 1890, and yet the tonnage of each of these lake channels, it will be seen, has much exceeded the entire tonnage of all nations which passed through the Suez Canal in 1890. There was an excess in favor of St. Mary's Falls Canal of 1,564,341 tons, and a very much larger excess in favor of the other two channels.

As against the combined work of nine of the leading lines of railway of this country, lake vessels took out of Chicago during the seven months of navigation in 1891, 63.4 per cent. of all east-bound shipments from Chicago within that period. The total shipments of freight of all kinds, east-bound from Chicago, May to November, inclusive, according to the weekly reports of the Chicago Board of Trade, were 4,265,934 tons, and of this the lakes carried 2,705,084 tons and the railways 1,560,850 tons. The railways engaged in this east-bound traffic were the Grand Trunk, Michigan Central, Lake Shore, Pittsburg, Fort Wayne & Chicago, Pan Handle, Erie, Baltimore & Ohio, Wabash and Nickel Plate.

GROWTH OF THE LAKE FLEET.

Just 61 per cent. of the steam vessels of 1,000 to 2,500 tons in the entire merchant marine of the United States are owned on the great lakes. This is shown in the report of the United States commissioner of navigation for the year ending June 30, 1891. Not only are the lakes now far in advance of all other sections of the country in the ownership of large steam vessels of this class, but the number of such vessels keeps increasing at a wonderful rate each year, as shown in the following table:

STEAM VESSELS OF 1,000 TO 2,500 TONS IN THE UNITED STATES.

(From 1891 Report of United States Commissioner of Navigation.)

| DISTRICTS. | JUNE 30, 1891. | | JUNE 30, 1890. | | INCREASE. | |
|-------------------------------|----------------|-------------|----------------|-------------|-----------|-------------|
| | No. | GROSS TONS. | No. | GROSS TONS. | No. | GROSS TONS. |
| Northern Lakes..... | 310 | 512,787.58 | 272 | 439,786.85 | 38 | 73,000.73 |
| Atlantic and Gulf Coasts..... | 164 | 250,732.26 | 157 | 237,105.88 | 7 | 13,626.58 |
| Pacific Coast..... | 28 | 42,312.54 | 28 | 43,000.82 | ..... | 688.28 |
| Western Rivers..... | 21 | 26,706.04 | 22 | 28,588.24 | 1 | 1,882.20 |
| Total | 523 | 832,538.42 | 478 | 784,481.59 | 46 | 84,056.83 |

Of a total of 4,684,758.94 gross tons in the merchant marine of this country, on June 30, 1891, as shown below, the lakes contribute 1,154,870.30 gross tons, although the number of vessels on the lakes on that date was only 3,600, against 23,889 in the entire country.

MERCHANT MARINE OF THE UNITED STATES ON JUNE 30, 1891.

(From 1891 Report of United States Commissioner of Navigation.)

| DISTRICTS. | STEAM VESSELS. | | SAIL AND UNRIGGED. | | TOTAL ALL CLASSES. | |
|------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|
| | No. | GROSS TONS. | No. | GROSS TONS. | No. | GROSS TONS. |
| Northern Lakes..... | 1,592 | 736,751.53 | 2,008 | 418,118.85 | 3,600 | 1,154,870.38 |
| Atlantic and Gulf Coast..... | 2,935 | 886,375.34 | 14,629 | 1,894,307.93 | 17,564 | 2,780,683.27 |
| Pacific Coast..... | 578 | 187,420.26 | 880 | 253,424.48 | 1,458 | 440,857.74 |
| Western Rivers..... | 1,111 | 205,707.69 | 166 | 102,639.86 | 1,277 | 308,347.55 |
| Total..... | 6,210 | 2,016,263.82 | 17,683 | 2,688,495.12 | 28,899 | 4,684,758.94 |

On June 30, 1890, there were only 3,510 vessels on the lakes and their total gross tonnage was 1,063,063.90, so that ninety craft, sixty-five of which were steam, were added to the fleet during the year, and the increase in tonnage amounted to 91,806.48 gross tons.

TONNAGE AND VALUATION, EXCLUSIVE OF HARBOR TUGS AND VESSELS NOT STRICTLY CARRIERS.

The Inland Lloyd's Register, a publication used by underwriters in conducting the hull insurance business of the lakes, takes account of only the business fleet, excluding yachts, harbor tugs, etc. According to the register for 1886, the business fleet of the lakes on September 1 of that year consisted of 1,097 vessels, with a tonnage of 634,652 net registered tons, and of the value of \$30,597,450. This shows an increase over 1862, twenty-four years previous, of 65.57 per cent. in the tonnage and 157.93 per cent. in the value of this business fleet. From the same authority it is learned that on December 1, 1891, the number of vessels of this class had increased to 2,125, the net tonnage to 870,981, and the value to \$57,054,750. This is, of course, exclusive of vessels which are not strictly a part of the carrying fleet, which, if included, would make up an aggregate registered, enrolled and licensed tonnage of 1,154,870 gross tons, as shown in previous tables.

Thus it will be seen that in five years from 1886 to 1891, there was an increase in the net tonnage of this carrying fleet of 236,329 tons, or 37.24 per cent., and of \$26,457,300, or 86.47 per cent., in the value of these immense inland shipping interests, which are the wonder and admiration of the commercial world.

The value of steam vessels in 1886 was \$22,047,200, and in 1891 it was \$49,543,750, an increase of \$27,496,550.

Still more remarkable and surprising is the advance and improvement made in the size and material of which steam vessels are constructed. In 1859, the largest propellers on the lakes averaged about 700 tons, net register, and varied from 580 to 980 tons. The register of 1886 shows that there were twenty-one steamers on the lakes which had a net

registered tonnage to exceed 1,500 tons, and in 1891 the register shows there were 126 such steamers. December 1, 1886, there were on the Great Lakes only six steel vessels, with a tonnage of 6,459 tons, of the value of \$694,000; and December 1, 1891, there were 89 steel vessels, with a tonnage of 127,624 tons and with a valuation of \$14,502,500. At the same time the average carrying capacity of the largest coarse freight steamers has in one year increased from 2,652 to 3,200 gross tons.

COMPARISON WITH OCEAN VESSELS.

The number of American vessels engaged in the foreign trade on the Atlantic, Gulf and Pacific coasts combined, in June, 1891, was 1,579; on the Northern Lakes the total fleet of foreign and coastwise trading vessels was 3,600, or 2,021 in favor of the latter. The total tonnage of American vessels engaged in the foreign trade on the Atlantic and Gulf coasts, in 1891, was 781,655 tons. The total tonnage of American vessels on the Pacific coast engaged in the foreign trade was 217,592 tons. The total tonnage of vessels on the Northern Lakes engaged in both domestic and foreign commerce was at the same time 1,154,870 tons, or 373,215 tons in excess of the Atlantic and Gulf coast tonnage, and 937,278 tons in excess of the tonnage of the Pacific coast vessels engaged in the foreign trade. The total tonnage of vessels engaged in the coastwise trade on the Atlantic and Gulf coasts, in 1891, was 1,999,028 tons, and upon the Pacific coast it was 223,265 tons, as compared with 1,154,870 tons, the total tonnage of the fleet of the Northern Lakes. The total tonnage, foreign and coastwise, of the Atlantic, Gulf and Pacific coasts, in 1891, was 3,221,541 tons.

It will be observed, then, that the tonnage of the vessels upon the Northern Lakes was over one-third of the combined tonnage of the Atlantic, Pacific and Gulf coasts, or 35.85 per cent. of the same. The total tonnage of the entire merchant marine of the United States in 1891, including all the seaboard, the rivers and lakes, was 4,684,759 gross tons. It appears, then, that the tonnage of the Great Lakes is about one-fourth of the whole.

SUMMARY SHOWING NUMBER AND TONNAGE OF CERTAIN CLASSES OF VESSELS FOR CITIES NAMED.

(Eleventh Census Returns, covering 1889—Includes only business fleet.)

| CITIES. | Total. | Propellers Carrying both Passengers and Freight. | Propellers Carrying Freight Only. | Schooners. | | All Other Classes. | No. Tonnage. |
|------------------------|---------|--|-----------------------------------|--------------|--------------|--------------------|--------------|
| | | | | No. Tonnage. | No. Tonnage. | | |
| 2,784 | 924,472 | 307 | 143,983 | 433 | 387,005 | 939 | 185,776 |
| Grand total..... | | | | | | | 301 |
| Total..... | 1,814 | 639,716 | 167 | 101,193 | 349 | 308,433 | 622 |
| Cleveland..... | 219 | 163,227 | 19 | 33,986 | 66 | 83,979 | 64 |
| Detroit..... | 275 | 129,768 | 17 | 8,565 | 56 | 56,904 | 83 |
| Buffalo..... | 204 | 128,860 | 43 | 34,542 | 50 | 72,066 | 17 |
| Chicago..... | 339 | 71,260 | 34 | 13,181 | 28 | 10,900 | 155 |
| Milwaukee..... | 259 | 61,694 | 12 | 3,282 | 53 | 39,172 | 129 |
| Port Huron..... | 293 | 61,482 | 11 | 1,887 | 73 | 40,840 | 100 |
| Grand Haven..... | 225 | 20,425 | 31 | 5,750 | 23 | 4,422 | 74 |
| Total other ports..... | 970 | 287,756 | 140 | 42,790 | 84 | 78,662 | 317 |
| | | | | | | | 65,474 |
| | | | | | | | 172 |
| | | | | | | | 79,890 |
| | | | | | | | 257 |
| | | | | | | | 20,940 |
| | | | | | | | |

REDUCED FREIGHT CHARGES.

In 1859, it cost an average of $15\frac{3}{4}$ cents to carry a bushel of corn from Chicago to Buffalo by lake. In 1871, the same service cost $7\frac{1}{2}$ cents a bushel. In 1890, it cost 1.9 cents a bushel, and in 1891, 2.5 cents. In 1867, it cost an average of \$4.25 per ton to carry iron ore from Escanaba to Lake Erie. In 1870, the same service cost \$2.50. In 1891, the average cost was 84 cents, while the rate during the season had been as low as 55 cents a ton at times. Statements that follow will serve to show the reduction in freight charges:

FREIGHT CHARGES ON IRON ORE, PORTS NAMED TO OHIO PORTS.

| Year. | Total Shipments by Lake. Gross Tons. | Escanaba. | | Marquette. | | Ashland. | |
|-------|---|------------|----------------|------------|----------------|------------|----------------|
| | | Wild Rate. | Contract Rate. | Wild Rate. | Contract Rate. | Wild Rate. | Contract Rate. |
| | | | | | | | |
| 1872 | 948,553 | \$ 3 33 | \$ 2 00 | \$ 4 25 | \$ 2 80 | ..... | ..... |
| 1873 | 1,195,234 | 2 59 | 2 60 | 3 53 | 3 50 | ..... | ..... |
| 1874 | 809,934 | 1 36 | 2 00 | 1 93 | 2 75 | ..... | ..... |
| 1875 | 881,166 | 1 13 | 1 40 | 1 50 | 1 75 | ..... | ..... |
| 1876 | 993,311 | .86 | 1 20 | 1 35 | 1 50 | ..... | ..... |
| 1877 | 1,025,129 | .98 | 1 00 | 1 41 | 1 40 | ..... | ..... |
| 1878 | 1,111,110 | .81 | .90 | 1 22 | 1 30 | ..... | ..... |
| 1879 | 1,375,691 | 1 25 | .90 | 1 83 | 1 40 | ..... | ..... |
| 1880 | 1,908,745 | 1 70 | 1 85 | 2 26 | 2 75 | ..... | ..... |
| 1881 | 2,307,005 | 1 36 | 1 75 | 2 05 | 2 45 | ..... | ..... |
| 1882 | 2,965,412 | 1 04 | 1 40 | 1 26 | 1 75 | ..... | ..... |
| 1883 | 2,352,840 | 1 22 | 1 00 | 1 40 | 1 20 | ..... | ..... |
| 1884 | 2,508,693 | .87 | 1 10 | 1 08 | 1 35 | ..... | ..... |
| 1885 | 2,516,642 | .78 | .90 | .98 | 1 05 | \$ 1 25 | \$ 1 15 |
| 1886 | 3,559,371 | 1 28 | 1 05 | 1 51 | 1 20 | 1 78 | 1 20 |
| 1887 | 4,742,276 | 1 59 | 1 40 | 1 87 | 1 63 | 2 23 | 2 00 |
| 1888 | 5,046,503 | 1 05 | .90 | 1 30 | 1 15 | 1 43 | 1 25 |
| 1889 | 7,292,644 | 1 01 | 1 00 | 1 19 | 1 10 | 1 34 | 1 25 |
| 1890 | 9,003,701 | .89 | 1 10 | 1 07 | 1 25 | 1 17 | 1 35 |
| 1891 | 7,011,933 | .84 | .65 | 1 02 | .90 | 1 11 | 1 00 |

[Charge to vessel for handling ore, $19\frac{1}{2}$ cents.]

Average ore rates for the entire period of twenty years: Escanaba, contract, \$1.30 $\frac{1}{2}$; wild, \$1.29 $\frac{1}{2}$; Marquette, contract, \$1.71; wild, \$1.70. Average for the past ten years: Escanaba, contract, \$1.05; wild, \$1.05 7-10; Marquette, contract, \$1.25 4-5; wild, \$1.26 4-5. Ashland averages for seven years are \$1.31 contract, and \$1.47 wild.

FREIGHT CHARGES ON SOFT COAL, OHIO PORTS TO PORTS NAMED.

| <i>Year.</i> | <i>Chicago.</i> | <i>Milwaukee.</i> | <i>Escanaba.</i> | <i>Duluth.</i> |
|---------------------------|-----------------|-------------------|------------------|----------------|
| 1885..... | \$ 67 | \$ 63 | \$ 51 | \$ 49 |
| 1886..... | 89 | 83 | 60 | 78 |
| 1887..... | 1 11 | 1 06 | 72 | 89 |
| 1888..... | 92 | 84 | 61 | 66 |
| 1889..... | 59 | 54 | 49 | 52 |
| 1890..... | 66 | 64 | 45 | 49 |
| 1891..... | 61 | 61 | 52 | 49 |
| | — | — | — | — |
| Average, seven years..... | 77 | 74 | 56 | 62 |

FREIGHT CHARGES ON HARD COAL, BUFFALO TO PORTS NAMED.

| <i>Year.</i> | <i>Chicago.</i> | <i>Duluth.</i> |
|---------------------------|-----------------|----------------|
| 1885..... | \$0 71 | \$0 52 |
| 1886..... | 87 | 62 |
| 1887..... | 1 05 | 70 |
| 1888..... | 86 | 65 |
| 1889..... | 52 | 41 |
| 1890..... | 62 | 43 |
| 1891..... | 56 | 29 |
| | — | — |
| Average, seven years..... | 74 | 52 |

[Coal shipped net tons; handled without charge to vessel.]

FREIGHT CHARGES ON GRAIN, CHICAGO TO BUFFALO.

| <i>Year.</i> | <i>Wheat.</i> | <i>Year.</i> | <i>Wheat.</i> |
|--------------|---------------|-------------------------|---------------|
| 1877..... | 3.7 cents. | 1886..... | 3.6 cents. |
| 1878..... | 3.1 " | 1887..... | 4.1 " |
| 1879..... | 4.7 " | 1888..... | 2.7 " |
| 1880..... | 5.7 " | 1889..... | 2.5 " |
| 1881..... | 3.2 " | 1890..... | 1.9 " |
| 1882..... | 2.5 " | 1891..... | 2.5 " |
| 1883..... | 3.5 " | | |
| 1884..... | 2.1 " | Average, fifteen years, | 3.2 cents. |
| 1885..... | 2 " | | |

[Handling charge to vessel on grain, \$3.50 to \$4.00 per 1,000 bushels.]

COMMERCE THROUGH THE ST. MARY'S FALLS CANAL.

No artificial waterway in the world passes more commerce than the St. Mary's Falls Canal, by which navigation is made possible at a point where there is a descent of eighteen feet two inches in the St. Mary's river. Lake Superior was opened by the canal and completion of the first lock in 1855. A second and larger lock was completed in 1881, and now a third lock, to be placed along side the lock now in use, and to be completed in 1896, is being constructed at a cost of \$4,988,865. This lock will be 800 feet long and 100 feet wide and will admit of the passage of vessels drawing 21 feet. The necessity for this increase in the size of the canal lock will be understood when reference is made to the enormous commerce of the canal. Freight of an aggregate value of more than \$128,000,000 passed through this great waterway during 1891, and it was carried an average distance of 800 miles, at a cost of one mill and three-tenths per ton per mile. Only one other canal in the world, the Suez, can be compared, as regards the volume of commerce, with the St. Mary's Falls Canal. The aggregate commerce of the St. Mary's Falls Canal for the past three years is, as shown below, much greater than that of the Suez, although the latter is open during the full year, as against an average season of about 220 days in the Lake Superior latitude.

COMPARATIVE STATEMENT, SAULT AND SUEZ CANALS.

| SUEZ CANAL. | | | ST. MARY'S FALLS CANAL. | | |
|-------------|--------------------|-------------------------|-------------------------|--------------------|-------------------------|
| Year. | Number of Vessels. | Net Registered Tonnage. | Year. | Number of Vessels. | Net Registered Tonnage. |
| 1887..... | 3,137 | 5,903,024 | 1887..... | 9,355 | 4,897,598 |
| 1888..... | 3,440 | 6,640,034 | 1888..... | 7,803 | 5,130,659 |
| 1889..... | 3,425 | 6,783,187 | 1889..... | 9,579 | 7,221,935 |
| 1890..... | 3,389 | 6,890,014 | 1890..... | 10,557 | 8,454,435 |
| 1891..... | 4,207 | 8,698,777 | 1891..... | 10,191 | 8,400,685 |

In the following table are given the character, amount and value of freight that passed through this canal during the seasons of 1890 and 1891. Ninety per cent. of the tonnage is made up of five commodities—wheat, corn, iron ore, coal

and lumber. These are primary products whose bulk and weight are large in comparison to value:

QUANTITY AND VALUE OF ST. MARY'S FALLS CANAL COMMERCE, SEASONS OF 1890 AND 1891.

| ITEMS. | QUANTITY. | | VALUATION. | |
|------------------------------|--------------|------------|----------------|-----------------|
| | 1890. | 1891. | 1890. | 1891. |
| Vessels..... | Number. | 10,557 | 10,191 | ..... |
| Lockage..... | " | 4,970 | 4,981 | ..... |
| Tonnage registered..... | Net tons. | 8,454,435 | 8,400,685 | ..... |
| Tonnage, freight..... | " | 9,041,213 | 8,888,759 | ..... |
| Passengers..... | Number. | 24,856 | 26,190 | ..... |
| Coal, hard and soft..... | Net tons. | 2,176,925 | 2,507,532 | \$ 7,619,237 50 |
| Flour..... | Barrels. | 3,239,104 | 3,780,143 | 16,195,520 00 |
| Wheat..... | Bushels. | 16,217,370 | 38,816,570 | 15,893,022 60 |
| Grain, other than wheat..... | " | 2,044,384 | 1,032,104 | 2,003,496 32 |
| Manufactured iron..... | Net tons. | 93,615 | 42,560 | 4,680,750 00 |
| Pig iron..... | " | 22,712 | 27,181 | 386,104 00 |
| Salt..... | Barrels. | 179,431 | 234,528 | 179,431 00 |
| Copper..... | Net tons. | 43,729 | 69,190 | 8,745,800 00 |
| Iron ore..... | " | 4,774,768 | 3,560,213 | 16,711,688 00 |
| Lumber..... | M. ft. B. M. | 361,929 | 366,305 | 6,514,722 00 |
| Silver ore and bullion..... | Net tons. | 3,432 | 1,731 | 527,807 28 |
| Building stone..... | " | 47,973 | 44,080 | 266,210 49 |
| Unclassified freight *..... | " | 371,294 | 417,093 | 479,730 00 |
| | | | | 22,277,640 00 |
| Total..... | | | 102,214,948 70 | 128,178,208 51 |

* Included in unclassified freight for 1891 is: Wool, 2,602 tons; hides, 460 tons.

COMPARATIVE STATEMENT OF THE AMOUNT OF THE EAST AND WEST BOUND COMMERCE THROUGH THE ST. MARY'S FALLS CANAL AND TOTAL VALUATION OF THE SAME FOR THE CALENDAR YEARS OF 1881 TO 1891 INCLUSIVE.

| SEASONS. | Actual Freight (Tons of 2,000 pounds.) | | Valuation of Freight Tonnage.* | Average Value Per Ton. |
|-----------|---|-------------|--------------------------------------|------------------------------|
| | East Bound. | West Bound. | | |
| 1881..... | 965,236 | 445,111 | \$ 28,965,612 94 | \$ 20 54 |
| 1882..... | 1,338,027 | 691,494 | 31,288,153 68 | 15 39 |
| 1883..... | 1,277,283 | 989,822 | 39,730,663 56 | 17 53 |
| 1884..... | 1,909,290 | 965,267 | 51,905,786 61 | 18 06 |
| 1885..... | 2,135,066 | 1,121,562 | 53,413,472 13 | 16 40 |
| 1886..... | 3,179,943 | 1,347,816 | 69,080,071 95 | 15 26 |
| 1887..... | 3,749,446 | 1,745,203 | 79,031,757 78 | 14 38 |
| 1888..... | 3,923,344 | 2,488,079 | 82,156,019 97 | 12 81 |
| 1889..... | 5,552,641 | 1,983,381 | 83,732,527 15 | 11 19 |
| 1890..... | 6,428,838 | 2,612,375 | 102,214,948 70 | 11 31 |
| 1891..... | 5,969,691 | 2,919,068 | 128,178,208 51 | 14 42 |

* The valuations are all based on unit prices adopted in 1885.

Although the value of cargoes passing the canal in 1891 is nearly \$26,000,000 more than in 1890, the freight tonnage for the year is slightly less than in 1890. The increased value of freight is due to a movement of wheat unusually large, while the decrease in tonnage was the result of a light movement in ore, caused by overproduction the year previous. High priced grain taking the place of iron ore was the cause of the increased value of tonnage.

It will be observed that in the eleven years there has been a remarkable increase both in the freight tonnage and in the valuation. The increase in the total tonnage, both east and west bound, from 1881 to 1891, was 1,410,347 tons, compared to 8,888,759 tons, or an increase of 530.25 per cent. During the same period the valuation of cargoes increased from \$28,965,612.94 to \$128,178,208.51, or 342.52 per cent. During the 225 days in which the canal was open in 1891, there passed through 7,339 steamers, 2,405 sail vessels, and 447 unregistered vessels, a total of 10,191 craft, or an average of 45 per day during the entire season.

**TOTAL COST OF CARRYING FREIGHT, NET TONS, THROUGH
ST. MARY'S FALLS CANAL, AND COST OF
CARRYING PER TON PER MILE.**

| YEARS. | Tons of Freight Carried. | Total Cost of Carry- ing Freight. | Cost per Ton per Mile. |
|-----------|--------------------------------|---|------------------------------|
| 1887..... | 5,494,649 | \$10,075,153 | 2.3 |
| 1888..... | 6,411,423 | 7,883,077 | 1.5 |
| 1889..... | 7,486,022 | 8,634,247 | 1.5 |
| 1890..... | 9,041,213 | 9,472,215 | 1.3 |
| 1891..... | 8,888,759 | 9,849,022 | 1.35 |

All data regarding the commerce of this canal are from the reports of O. M. Poe, Col. of Engineers, Brvt. Brig. Gen. U. S. A., the officer in charge.

TWENTY FEET OF WATER.

When the new lock at St. Mary's Falls Canal just referred to is completed, in 1896, it is expected that a draft of twenty feet of water will be secured throughout the lakes. Twenty feet of water at the Sault is intended to mean twenty feet in every other channel on the lakes, between Chicago, Duluth, and Buffalo, and in pursuance of this comprehensive plan, Congress has begun appropriations for the removal of obstructions at six different localities along the line, the estimated cost being \$3,394,835.

IV.—SHIPBUILDING.

CLEVELAND'S PRE-EMINENT POSITION—COMPARISON WITH THE CLYDE—MODERN STEEL STEAMERS.

With a national movement now tending towards the advancement of the American merchant marine, and towards the encouragement of the shipbuilding industry in all its branches, and especially the building of metal ships, it is a matter of no small pride to be able to claim for Cleveland the great prestige of being the largest shipbuilding point in the United States. Not only does Cleveland occupy a pre-eminent position among the shipbuilding cities of the nation, but it can be said further that in only one other district of the world, the famous Clyde, is the new tonnage turned out each year in excess of that built here. Although the building of iron and steel vessels is comparatively a new industry here, only one other city in the United States, Philadelphia, which contains the immense plant of the Cramps for the construction of war vessels, has built in the past two years more tonnage of this class than Cleveland. These are not exaggerated statements; neither is there any difference in the kind of vessels constructed here and those constructed for ocean service. The modern American lake steamer will rank among the finest merchant vessels on the globe, and the proof of Cleveland's ability to build more of such vessels than any place outside of Great Britain's immense dock yards, will be found in the census reports and statements from other authorities that follow.

In this industry, the Eleventh Census has taken account

of the work of only two years, 1889-90, for which the following report is made of tonnage of all kinds constructed in our three principal shipbuilding cities:

| | <i>Gross Tons.</i> |
|------------------------|--------------------|
| Cleveland, O..... | 71,322 |
| Philadelphia, Pa | 53,811 |
| Bath, Me..... | 49,830 |

The excess of Cleveland over Philadelphia in the two years is thus shown to be 17,511 tons, and over Bath 21,492 tons.

Turn now to the building of vessels of all kinds in Cleveland for five years, ending with the census returns, and we have the following from reports of the United States Commissioner of Navigation:

| <i>Year.</i> | <i>Number of Boats.</i> | <i>Gross Tonnage.</i> |
|----------------|-----------------------------|---------------------------|
| 1890..... | 24 | 39,095 |
| 1889..... | 22 | 32,227 |
| 1888..... | 24 | 25,940 |
| 1887..... | 21 | 22,014 |
| 1886..... | 9 | 5,989 |
| Total..... | 100 | 125,265 |

Philadelphia, through the building of war ships for the United States government, is enabled to make a large showing in the number and tonnage of steel vessels turned out from its ship yards. But it must be borne in mind that the iron and steel craft constructed here, as well as the great number of wooden vessels launched in past years, are freight and passenger vessels that go to swell the commerce of this and other cities on the lakes. Turning to the building of metal vessels during 1891, the year following the census, it is found that in that year there was constructed in the United States, according to the report of the United States Commissioner of Navigation, seventy-six steel and iron vessels of 105,618.16 gross tons, and 55 per cent. of this tonnage, or 57,988.51 gross tons, was from lake ship yards, Cleveland leading the lake cities with fourteen vessels of 26,523.27 gross tons, against twenty-one vessels of 36,673.37 gross tons for Philadelphia. The statement covering all cities in the country is as follows:

STEEL AND IRON VESSELS BUILT IN THE UNITED STATES
DURING 1891.

| DISTRICTS. | No. | TONNAGE. | |
|--------------------------|-----|------------|-----------|
| | | Gross. | Net. |
| Cleveland, O..... | 14 | 26,523.27 | 21,110.44 |
| Philadelphia, Pa..... | 21 | 36,673.37 | 25,032.34 |
| Buffalo, N. Y..... | 4 | 2,211.90 | 1,762.27 |
| Toledo, O..... | 3 | 3,004.75 | 2,366.34 |
| Detroit, Mich..... | 2 | 5,056.38 | 3,956.43 |
| Port Huron, Mich..... | 3 | 7,452.02 | 5,909.45 |
| Marquette, Mich..... | 5 | 6,328.45 | 5,492.16 |
| Chicago, Ill..... | 2 | 4,863.42 | 3,984.06 |
| Duluth, Minn..... | 2 | 2,548.32 | 2,239.05 |
| New York, N. Y..... | 5 | 1,779.73 | 1,495.80 |
| Wilmington, Del..... | 7 | 7,078.07 | 4,854.72 |
| Baltimore, Md..... | 1 | 118.64 | 59.32 |
| Newport News, Va..... | 2 | 260.32 | 130.16 |
| Savannah, Ga..... | 1 | 354.88 | 241.76 |
| Dubuque, Iowa..... | 3 | 1,023.18 | 1,010.68 |
| Pittsburg, Pa..... | 1 | 341.46 | 240.06 |
| Total all ports..... | 76 | 105,618.16 | 79,885.04 |
| Lake ports..... | 35 | 57,988.51 | 46,820.20 |
| Seaboard and Rivers... | 41 | 47,629.65 | 33,064.84 |

In 1890, Cleveland's showing in the construction of iron and steel vessels is even better than that of 1891, the aggregate of new tonnage being 28,629.72 gross tons, against 29,008.39 for Philadelphia.

SHIPBUILDING PLANTS AND DRY DOCKS.

Eight shipbuilding and dry dock establishments in the city make a return of capital to the Census Bureau aggregating \$2,587,775. They employed 2,083 hands during the census year, paid out for wages \$1,188,662, for material \$1,442,045, and for miscellaneous expenses \$73,921. The combined value of their products was \$3,091,300, and in this item was shown the importance of such an industry to the city. Although the enhanced value of the product is not large, the number of hands employed and the amount paid

in wages is proportionately enormous. Four dry docks in the city alone represent an investment of \$450,000.

Convenient and extensive iron and steel works and a demand for new tonnage, to cope with the wonderful growth in lake commerce during the past five years, has given to the city the proud position which it holds as a shipbuilding center. A liberal expenditure of capital has resulted in the erection of plants for the iron and steel building industry that can compete with the seaboard builders for vessels to be used in the coast trade. During the present year the Globe Iron Works Company of this city built and delivered at New York for the United States light-house service, two light-house tenders, at a cost of \$155,700. In securing the contract for these boats the Cleveland company was brought into competition with Atlantic coast builders, and was at a great disadvantage in cost of getting the vessels through the canals and shallow waters or the St. Lawrence river. It has been demonstrated by this and other contracts of a similar nature made by other companies on the lakes, that the lake builders, and especially the big Cleveland plants, can underbid the coast builders on contracts for vessels of a size that will admit of passage through the system of locks in canals along the River St. Lawrence. Even more than this has in fact been accomplished. In the fall of 1890, the steel steamer *Mackinaw*, capacity 4,000 tons, was sent to the Atlantic coast from a lake ship-yard; this is one of two ships built by F. W. Wheeler & Co., of West Bay City, for ocean trade, and reference is made to it here simply as an example of what the Cleveland yards, or others around the lakes, might do as well. The *Mackinaw* was launched at Bay Bity, towed to Buffalo, cut in two sections, taken in this shape through the Welland and St. Lawrence canals and put together at Montreal. The total extra expenses occasioned by these processes was about \$10,000. The *Keweenaw*, a sister ship, followed after the same manner, and both these vessels, representing an investment of about \$325,000, but costing their owners less than they would have cost if constructed on the coast, have been giving excellent

satisfaction in the coastwise and foreign trade on the ocean. In addition to the vessels named here, six others have been built on the lakes and sent to the Atlantic during the past year.

Wooden vessels were built in Cleveland as early as 1818. The first steamboat, the *Enterprise*, of about 225 tons, was built in 1824. As far back as 1856, thirty-seven small wooden vessels were built here in a single year. The days of wooden vessels have passed, however, as far as Cleveland is concerned, and the same might be said of the entire chain of lakes. The coming season will probably not see more than a dozen wooden keels for vessels of modern size laid in all lake ports. The plants for wooden construction are, of course, here for repairs to the big fleet already in commission, but they have in most cases been connected with immense dry docks, capable of caring for both steel and wooden craft. The dry docks, too, have close relations with the steel builders, and are fitted for the change that has taken place.

It has been shown that in this change from wood to steel Cleveland has been greatly benefited by the advantages derived from close proximity to supplies of raw material, and from the fact that the larger portion of vessel property on the lakes has been controlled here for years past. Two big concerns, the Globe Iron Works Company and the Cleveland Shipbuilding Company, are now practically in control of all shipbuilding here. Some idea of the extent of the works operated by these two companies may be gained from a list of vessels built by them since 1886, and printed herewith. A few steel vessels were built here previous to 1886, but the industry did not really begin until that year. Now these works have facilities under an extreme pressure of their resources to lay keels at one time for nine steel steamers of 2,000 to 4,000 tons capacity. The active managers of these two companies are John F. Pankhurst and Luther Allen in the Globe Iron Works Company, and Henry D. Coffinberry and Robert Wallace in the Cleveland Shipbuilding Company. The Globe Company has the larger

plant, which is second only in America to Wm. Cramp's Sons, Philadelphia. As a passing note of history, the honor of having established this industry in Cleveland may be accorded equally to Messrs. Henry D. Coffinberry, John F. Pankhurst and Robert Wallace. These gentlemen were partners previous to 1886, in a firm known as the Globe Iron Works, established in 1858, and engaged mainly up to 1884 in the business of constructing engines and boilers for lake vessels. In 1884, there was formed from this partnership the Globe Shipbuilding Company. This latter company, under the management of the gentlemen named, built three or four steel vessels, but later, in 1886, there was a separation of interests, which resulted in the formation of two new corporations. In the Globe Iron Works Company, which secured control of the plant of the Globe Shipbuilding Company, the principal officers are: H. M. Hanna, president; John F. Pankhurst, vice-president and general manager; Luther Allen, secretary and treasurer. Messrs. Coffinberry and Wallace organized immediately the Cleveland Shipbuilding Company, purchasing the plant and entire interests of the Cuyahoga Steam Furnace Company, a concern organized in 1853, and which had also been engaged in the construction of marine machinery and boilers. The officers of the Cleveland Shipbuilding Company are: Henry D. Coffinberry, president; Robert Wallace, vice-president; Wm. M. Fitch, secretary.

MODERN STEEL STEAMERS.

In a statement that follows, it is shown that on July 1, 1892, there were owned in Cleveland forty steel vessels, all but one of which were steamers, having a net registered tonnage of 69,317 tons, and an insurance valuation of \$7,119,000. This statement is presented as further evidence of the work of Cleveland ship yards during the past few years, as all but five of these steamers owned in Cleveland were built at home. The list does not, of course, show all of the steel

tonnage built in Cleveland, much of which is registered at other lake ports. Among high class tonnage of this kind built by the Globe Iron Works Company and owned elsewhere, may be mentioned the six boats of the Northern Steamship Company, the five new steel steamers of the Lehigh Valley Transportation Company, and the \$300,000 twin-screw passenger steamer, *Virginia*, owned by the Goodrich Transportation Company, of Chicago. This company is now engaged on two passenger boats for Lake Superior service that will cost \$400,000 each, and will have a horse power of 6,000 each. The Cleveland Shipbuilding Company has also built for parties outside of Cleveland, within the past three years, six vessels of an aggregate value of about \$750,000.

TONNAGE AND VALUE OF FORTY STEEL VESSELS OWNED IN
CLEVELAND, JULY 1, 1892.

(From Inland Lloyd's Insurance Register.)

| VESSELS. | Net Registered Tonnage. | Valuation. |
|------------------------------------|----------------------------|-------------|
| Andaste | 1,560 | \$ 150,000 |
| Briton | 1,860 | 200,000 |
| Cambria | 1,377 | 160,000 |
| <i>a</i> Cadillac | 1,550 | 130,000 |
| Castalia | 1,841 | 200,000 |
| Choctaw | 1,560 | 150,000 |
| Chisholm, Wm. | 1,246 | 145,000 |
| Corona | 1,828 | 190,000 |
| Corsica | 1,787 | 190,000 |
| Devereaux, J. H. | 1,246 | 145,000 |
| Frontenac | 1,677 | 170,000 |
| German | 1,871 | 200,000 |
| Gilcher, W. H. | 1,950 | 200,000 |
| Griffin | 1,526 | 165,000 |
| Grecian | 1,861 | 200,000 |
| Joliet | 1,546 | 165,000 |
| La Salle | 1,546 | 165,000 |
| Manola | 1,836 | 200,000 |
| Mariska | 1,836 | 200,000 |
| Marina | 1,836 | 200,000 |
| Maruba | 1,836 | 200,000 |
| Masaba | 1,836 | 200,000 |
| Matoa | 1,836 | 200,000 |
| Mariposa | 2,150 | 240,000 |
| <i>a</i> Maritana | 2,150 | 240,000 |
| Mitchell, Samuel | 1,925 | 174,000 |
| <i>a</i> Moore, J. W. | 1,889 | 175,000 |
| Norman | 1,870 | 200,000 |
| <i>a</i> Pathfinder | 2,150 | 180,000 |
| <i>a</i> Pioneer | 1,450 | 120,000 |
| Pontiac | 1,788 | 200,000 |
| Republic | 1,874 | 200,000 |
| Roman | 1,875 | 200,000 |
| <i>ab</i> Sagamore | 1,950 | 80,000 |
| Saxon | 1,861 | 200,000 |
| Spokane | 1,550 | 140,000 |
| Viking | 994 | 95,000 |
| Wade, J. H. | 1,502 | 165,000 |
| Wawatam | 1,526 | 165,000 |
| Western Reserve | 1,965 | 220,000 |
| Total | 69,317 | \$7,119,000 |

a—Built at a lake port other than Cleveland.*b*—Tow barge; all others, steamers.

Every one of the steel steamers in the foregoing list may be classed among the best tonnage owned by the nation. Any of them could be readily converted into formidable vessels of war. The following account of the performance during 1890 of the Minnesota Steamship Company's steamer Manola will give some idea of what these ships are capable of doing:

MINNESOTA STEAMSHIP COMPANY STEEL STEAMER MANOLA.

| | |
|---|-------------------------|
| Length, keel..... | 292' 5 $\frac{1}{2}$ ". |
| Length, over all..... | 308' 5 $\frac{1}{2}$ ". |
| Breadth | 40'. |
| Depth, moulded..... | 24' 6". |
| Size of cylinders..... | 24", 38" and 61". |
| Stroke | 42". |
| Two boilers of 14' 0" diameter..... | 12' 6" long. |
| One wheel of 14' 0" diameter..... | 16' 6" lead. |
| Size water bottom 3' 4" deep, divided into six compartments, independent of collision bulkhead. | |
| Capacity water bottom..... | 800 tons. |
| Estimated horse-power..... | 2,000. |

STATEMENT OF OPERATIONS, STEAMER MANOLA, SEASON OF 1890.

| Receipts. | Amount. | Per ton freight carried. |
|--|-------------|-----------------------------|
| Freights..... | \$93,738 25 | \$1.317 |
| Towing ..... | ..... | ..... |
| Sundry sources..... | ..... | ..... |
| Gross earnings..... | 93,738 25 | 1.317 |
| Disbursements. | Amount. | Per ton freight carried. |
| Fuel | \$14,427 14 | \$0.203 |
| Oil..... | 863 82 | 0.012 |
| Machinery and boiler, repairs and supplies,..... | 1,182 54 | 0.017 |
| Cabin supplies and provisions..... | 3,304 98 | 0.046 |
| Handling cargoes..... | 16,111 75 | 0.226 |
| Hull repairs..... | 149 34 | 0.002 |
| Towing | 744 00 | 0.011 |
| Chandlery..... | 1,328 37 | 0.018 |
| Sundry sources | 886 24 | 0.012 |
| Labor..... | 10,021 37 | 0.141 |
| Outfit..... | 623 44 | 0.009 |
| Insurance..... | 5,471 21 | 0.077 |
| Total expenses..... | \$55,114 20 | \$0.774 |
| Net earnings..... | \$38,624 05 | \$0.543 |

Gross earnings per day, \$422.24; operating expenses per day, \$248.25; net earnings per day, \$173.98; percentage of operations to earnings, 58.97; earnings per ton per mile, \$0.00078; operating expenses per ton per mile, \$0.00046; net earnings per ton per mile, \$0.00032; earnings per mile traveled, \$1.853; operating expenses per mile traveled, \$1.090; net earnings per mile traveled, \$0.763; total miles traveled, 50,584; average miles per day, 227½; tons freight carried, 71,170,690; tons freight carried one mile, 3,600,078,861; average speed per hour, light, 12.72 miles; average speed per hour, loaded, 11.85 miles; general average speed per hour, 12.25 miles; total tons fuel used, 5,528 tons; average tons fuel used per trip, 184.553 tons; average amount of fuel per mile, light, 209 lbs.; average amount of fuel per mile, loaded, 226 lbs.; general average amount fuel per mile, 218 lbs.; average fuel per ton per mile, 1½ oz.; number of trips, 30; average size cargo, 2,295¹⁸²⁸₂₂₄₀ tons; average draft water, Sault canal, 14' 7" and 14' 9"; average time loading, 7½ hours; average time unloading, 12 hours; average time handling cargo, 19½ hours; average tons loaded per hour, 306.244 tons; average tons unloaded per hour, 191.712 tons; average tons handled per hour, 235¹²⁵⁰₂₂₄₀ tons; actual time sailing, 175 days; actual time in port, 47 days; actual time in commission, 222 days; per cent. of time sailing, 78.83; per cent. of time in port, 21.17; average number crew each trip, 23; average wages crew each trip, \$334.05; average length of trip, 7 days 9½ hours; average mileage per trip, 1,686.

CLEVELAND LEADS ALL LAKE CITIES.

As in the discussion of Cleveland's commerce by lake, it will be interesting here also to compare the shipbuilding industry of the city with that of other lake cities, and the industry as a whole on the lakes with other districts of the country. Take first the lake cities for a single year, as showing how the business is divided, and we have the following:

SHIPBUILDING ON THE GREAT LAKES, YEAR ENDING
JUNE 30, 1890.

(From Commissioner of Navigation, Treasury Department.)

| PORTS. | No. of Vessels. | Gross Tonnage. |
|-------------------|-----------------|----------------|
| Cleveland..... | 24 | 39,095.20 |
| Bay City..... | 28 | 22,807.37 |
| Detroit..... | 18 | 21,430.69 |
| Milwaukee..... | 19 | 7,606.01 |
| Buffalo..... | 24 | 5,168.21 |
| Duluth..... | 4 | 4,975.28 |
| Champlain..... | 19 | 1,874.88 |
| Toledo..... | 3 | 1,284.05 |
| Niagara..... | 10 | 1,166.23 |
| Superior..... | 1 | 920.41 |
| Sandusky..... | 1 | 421.77 |
| Grand Haven..... | 18 | 594.62 |
| Chicago..... | 7 | 288.39 |
| Erie..... | 3 | 37.86 |
| Genesee..... | 2 | 187.92 |
| Oswegatchie..... | 4 | 134.24 |
| Oswego..... | 1 | 99.30 |
| Cape Vincent..... | 1 | 34.09 |
| Total..... | 187 | 108,126.52 |

In the building of vessels for five years past, the lakes have averaged nearly 100,000 tons a year, and the aggregate each year is but little below the entire output on the sea-board. Following is a statement by districts of the work of all shipyards in the United States for five years past:

SHIPBUILDING IN THE UNITED STATES FOR FIVE YEARS PAST.

(From Commissioner of Navigation, Treasury Department.)

| Year Ending June 30. | On the Great Lakes. | On the New Eng- land Coast. | On the Mississippi River and its Tribu- taries. | On the entire sea- board. | Total. |
|----------------------------|---------------------------|-----------------------------------|---|---------------------------------|--------------------|
| | <i>Gross Tons.</i> | <i>Gross Tons.</i> | <i>Gross Tons.</i> | <i>Gross Tons.</i> | <i>Gross Tons.</i> |
| 1887 | 56,488 | 24,035 | 10,901 | 83,061 | 150,450 |
| 1888 | 101,103 | 33,813 | 11,859 | 105,125 | 218,087 |
| 1889 | 107,080 | 39,983 | 12,202 | 111,852 | 231,134 |
| 1890 | 108,126 | 78,577 | 16,506 | 169,091 | 294,123 |
| 1891 | 111,856 | 105,491 | 19,984 | 237,462 | 369,302 |
| Total.. | 485,053 | 281,899 | 71,452 | 706,591 | 1,263,096 |

The following table covering only one year ending June 30, 1891, will serve to show the number and kind of vessels built on the lakes as compared with other sections:

DIFFERENT CLASSES OF VESSELS BUILT IN THE UNITED STATES DURING 1891.

(From Commissioner of Navigation, Treasury Department.)

| DISTRICTS. | STEAM VESSELS. | | SAIL AND UNRIGGED. | | TOTAL ALL CLASSES. | |
|--------------------------|----------------|-------------|--------------------|-------------|--------------------|-------------|
| | No. | Gross Tons. | No. | Gross Tons. | No. | Gross Tons. |
| Northern Lakes..... | 123 | 93,323.41 | 81 | 18,533.04 | 204 | 111,856.45 |
| Atlantic and Gulf Coasts | 216 | 67,073.67 | 728 | 151,318.79 | 944 | 218,392.46 |
| Pacific Coast..... | 54 | 9,166.51 | 68 | 9,903.33 | 122 | 19,069.84 |
| Western Rivers..... | 95 | 15,473.23 | 19 | 4,510.31 | 114 | 19,983.54 |
| Total..... | 488 | 185,036.82 | 896 | 184,265.47 | 1,384 | 369,303.29 |

It will be readily seen from the foregoing tables that the lake shipyards are building vessels of great tonnage and of the very best kind. If we consider the steam vessels built during the past five years, the comparison is even more favorable to them. Here are the figures from reports of the United States Commissioner of Navigation:

STEAM VESSELS BUILT IN THE UNITED STATES DURING THE PAST FIVE YEARS.

(From Commissioner of Navigation, Treasury Department.)

| DISTRICTS. | 1887 | 1888 | 1889 | 1890 | 1891 | Total. |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|---------|
| | Gross Tons. | |
| Northern Lakes..... | 47,183 | 87,459 | 93,703 | 86,023 | 93,323 | 407,695 |
| Atlantic and Gulf Coasts..... | 38,972 | 30,466 | 41,308 | 54,241 | 67,074 | 232,061 |
| Pacific Coast..... | 3,750 | 12,710 | 12,747 | 6,896 | 9,167 | 45,270 |
| Western Rivers..... | 10,168 | 11,372 | 11,557 | 11,886 | 15,473 | 60,456 |

It will be observed that the steam tonnage built on the Northern Lakes during the five years mentioned exceeds that built on the Atlantic and Gulf Coasts by 175,634 tons, and exceeds the steam tonnage built in all other parts of the United States by 69,910 tons.

TONNAGE OWNED IN CLEVELAND.

At a low estimate, the actual value of 289 vessels, aggregating 223,849 gross tons, owned in Cleveland on June 30, 1892, is \$17,000,000. That this is not an extreme figure is shown from the fact that forty steel and iron vessels owned in the city, a list of which is printed on a preceding page, are valued by lake underwriters at \$7,119,000, and this insurance valuation is rather below than above the actual value, as the underwriters will take risks to within 10 per cent. of their own figures. Statements that follow show the number and tonnage of vessels owned in all lake customs districts on June 30, 1891, and the increase in tonnage owned in Cleveland during ten years ending June 30, 1892:

NUMBER AND TONNAGE OF VESSELS OWNED IN LAKE CUSTOMS DISTRICTS ON JUNE 30, 1891.

(From Commissioner of Navigation, Treasury Department.)

| PORTS. | Numbers. | Gross Tonnage. |
|-----------------------------|----------|----------------|
| Cleveland..... | 256 | 209,542.98 |
| Buffalo..... | 315 | 160,668.38 |
| Huron (Port Huron)..... | 441 | 153,382.27 |
| Detroit..... | 292 | 150,335.12 |
| Milwaukee..... | 395 | 105,485.26 |
| Chicago..... | 332 | 73,999.45 |
| Champlain..... | *592 | 56,871.73 |
| Superior (Marquette)..... | 141 | 52,254.00 |
| Sandusky..... | 89 | 41,193.21 |
| Michigan (Grand Haven)..... | 293 | 32,050.03 |
| Erie..... | 46 | 29,740.00 |
| Oswegatchie..... | 55 | 26,685.64 |
| Oswego..... | 113 | 18,042.89 |
| Miami (Toledo)..... | 63 | 17,053.62 |
| Niagara..... | 21 | 10,252.93 |
| Vermont..... | 40 | 5,983.72 |
| Genesee..... | *24 | 4,259.00 |
| Cape Vincent..... | 50 | 3,692.21 |
| Duluth..... | 35 | 2,678.49 |
| Dunkirk..... | 7 | 699.45 |
| Total all lake ports..... | 3,600 | 1,154,870.38 |

* Mostly canal boats.

NUMBER, AND TONNAGE OF VESSELS OF ALL KINDS OWNED
IN CLEVELAND ON JUNE 30, OF EACH YEAR,
FOR TEN YEARS PAST.

(From Commissioner of Navigation, Treasury Department.)

| Years | STEAM VESSELS. | | | | SAIL VESSELS AND BARGES. | | TOTAL OF ALL CLASSES. | |
|-------|-----------------|----------------|-------|----------------|--------------------------|----------------|-----------------------|----------------|
| | Iron and Steel. | | Wood. | | All Wood. | | | |
| | No. | Gross Tonnage. | No. | Gross Tonnage. | No. | Gross Tonnage. | No. | Gross Tonnage. |
| 1892 | 27 | 56,262.70 | 151 | 112,489.36 | 111 | 55,097.57 | 289 | 223,849.63 |
| 1891 | 25 | 49,797.35 | 142 | 109,294.69 | 89 | 50,784.39 | 256 | 209,542.98 |
| 1890 | 14 | 26,865.36 | 137 | 112,072.13 | 102 | 54,385.24 | 253 | 193,322.73 |
| 1889 | 10 | 15,719.84 | 123 | 103,801.03 | 112 | 57,793.01 | 245 | 177,113.88 |
| 1888 | 9 | 15,580.42 | 109 | 80,194.84 | 107 | 52,143.79 | 225 | 147,899.05 |
| 1887 | 7 | 10,719.72 | 87 | 40,228.59 | 115 | 53,249.94 | 209 | 104,198.25 |
| 1886 | 6 | 7,201.75 | 81 | 47,819.23 | 109 | 46,700.43 | 196 | 101,721.41 |
| 1885 | 5 | 5,459.85 | 76 | 43,440.58 | 102 | 43,740.09 | 183 | 92,640.52 |
| 1884 | 2 | 1,951.20 | 76 | 32,695.84 | 106 | 41,742.51 | 184 | 76,389.55 |
| 1883 | | 1,951.21 | 73 | 29,820.30 | 109 | 40,104.19 | 184 | 71,875.70 |

V.—MANUFACTURING.

PRODUCTIVE INDUSTRIES IN WHICH CLEVELAND LEADS ALL CITIES OF THE UNITED STATES—POINTS IN FAVOR OF CLEVELAND AS A MANUFACTURING CENTER—FUEL—IRON AND STEEL—HARDWARE—RAILROAD EQUIPMENT—LUMBER AND MILL PRODUCTS—PETROLEUM AND ITS PRODUCTS—FLOURING AND GRIST MILLS—ELECTRICAL APPLIANCES—SEWING MACHINES—PAINTS AND VARNISHES—DRUGS AND CHEMICALS—SLAUGHTERING AND MEAT PACKING—MISCELLANEOUS.

In the manufacture of heavy forgings, wire nails, nuts and bolts, carriage and wagon hardware, vapor stoves, sewing machines, steel-tired car wheels, and heavy street railway machinery, Cleveland leads all cities of this country. These are only a few of the most important productive industries allied to the great furnace and rolling mill interests, and prominence is given to them simply for the purpose of calling attention to the fact that the city is distinctively headquarters in these lines. Here are located also the greatest shoddy mills in America; a plant for the manufacture of sewing machine wood-work that has no equal in the world; a steel bridge works that is represented in massive structures spanning rivers and valleys over the entire continent, and an electric light carbon works having a capacity of ten million carbons annually, with a market for its product extending to Mexico, South America, China and Japan.

Picked from among 2,300 manufacturing establishments in the city, according to the United States census of 1890, the distinctive character of the institutions just referred to will serve to show the important position held by the city as a center for industries of a productive nature.

Before describing in detail the leading manufacturing establishments of Cleveland and their products, some extracts are made here from the reports of the Eleventh Census so far made relative to productive industries in the city. The first of these, a bulletin from the Census Office, signed by the Hon. Robert P. Porter, superintendent, is as follows:

STATISTICS OF MANUFACTURES, CITY OF CLEVELAND.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
WASHINGTON, D. C., Oct. 8, 1892. }

Herewith is presented a preliminary report on the mechanical and manufacturing industries of the City of Cleveland for the year ended May 31, 1890, prepared under the direction of Mr. Frank R. Williams, special agent in charge of statistics of manufactures. The statements contained in this bulletin are preliminary and subject to modification for final report, therefore fair criticism and suggestions are invited, with a view to such revision and correction as may appear necessary.

It is proposed to promptly publish bulletins for all principal cities in a form similar to this, to be followed by final reports containing data in detail respecting all industries for each city at the earliest date practicable. The totals presented in the complete reports will not, however, be less, and may, in a number of cases, be considerably increased. A comparative statement is presented for 1880 and 1890 in Table 1, showing the totals under such general heads of the inquiry as are common to both census periods. Table 2 exhibits for important industries, under the general heads of

"capital employed," "miscellaneous expenses," "wages paid," "materials used," and "goods manufactured," all essential details of the inquiry for 1890, excepting wage statistics for the various classes of labor employed in the respective industries.'

In comparing results of the current inquiry with the returns of 1880, it will be observed that the item of "miscellaneous expenses" is given for 1890 only. No previous census inquiry has embraced the cost incurred in manufacturing operations other than wages paid and materials used. Differences in method of inquiry, as explained in this report, and the inclusion in the Eleventh Census of certain industries omitted in the Tenth Census, account in part for the increases shown.

The following classes of industry were omitted in the census reports of 1880: Cars, and general shop construction and repairs by steam railroad companies; druggists' preparations, not including prescriptions; millinery, custom work; women's dressmaking, custom work.

The totals stated for 1890, in Table 1, are increased as follows by the inclusion of the industries referred to: Number of establishments reported, 147; capital invested, \$696,955; number of hands employed, 1,347; wages paid, \$630,336; cost of materials used, \$532,764; miscellaneous expenses, \$38,163; value of product at works, \$1,330,083.

To ascertain the amounts for comparison with the totals for 1880, the foregoing figures should be subtracted from the totals stated in Table 1 for 1890, and the percentages of increase would then appear as follows:

PERCENTAGES OF INCREASE.

| | |
|--|--------|
| Number of establishments reported..... | 104.08 |
| Capital invested..... | 188.87 |
| Number of hands employed..... | 118.30 |
| Wages paid..... | 217.14 |
| Cost of materials used..... | 84.10 |
| Value of product at works..... | 111.65 |
| Population of city..... | 63.20 |
| Assessed valuation of city..... | 41.20 |

Decrease of municipal debt less sinking fund, 5.01 per cent.

A striking feature of these returns is the satisfactory increase in the number of establishments reported. Still more gratifying is the increase during the decade in the number of hands employed and the amount of wages paid; the wages have increased not only actually but relatively, the average wages per hand increasing from \$391 in 1880 to \$569 in 1890, or 45.52 per cent.

Part of this increase is undoubtedly due to the fact that in many industries relatively more men were employed in 1890 and less children; that the percentage of increase in the number of women employed has been less in many industries than in the number of adult males; and also to the fact that in ten years many branches of industry have improved the grades of their products, and for this reason require more skilled and higher paid employees. After making all possible allowance for these changes, for the more thorough enumeration of 1890, and for the advance in quantity of manufactured product, we have a decided relative increase in the amount paid in wages between 1880 and 1890.

Attention is called to the presentation of labor and wage statistics. The "average wages" paid to all classes employed has always proved a stumbling block in census reports. It is believed the Eleventh Census, in obtaining data to show the classification of labor employed, the average term of employment, the various rates of wages per week, and the average number of men, women and children, respectively, employed at each rate in the various classes, has taken a step in advance, which will be shown in detail in final reports, and appreciated by students of these data.

The act of Congress approved March 1, 1889, providing for the Eleventh Census, directs the superintendent of census to investigate and ascertain the statistics of the manufacturing industries of the country. By virtue of the authority conferred by Section 18 of the said act, the collection of statistics of all establishments of productive industry located in certain cities and towns was withdrawn from enumerators and assigned to special agents, who were appointed and entered upon their duties as soon after the completion of the work assigned the general enumerators as was practicable.

The instructions issued by this office to enumerators and special agents relating to the collection of statistics of manufactures were as follows:

It shall be their duty personally to visit every establishment of productive industry in their respective districts (except as noted) and obtain the required information in the case of each manufacturing establishment.

The term "establishment of productive industry" must be understood in its broadest sense to embrace not only mills and factories but also the operation of all small establishments and the mechanical trades.

Restaurants, saloons, barber shops, the compounding of individual prescriptions by druggists and apothecaries, the operations of mercantile establishments, transportation corporations and lines, and professional services (except mechanical dentistry) are not considered as coming within the meaning of the law in this connection.

Great care must be taken by special agents and enumerators to guard against the omission from their returns of any establishment that comes properly within the scope of this investigation. * * * They should have their eyes open to every indication of the presence of productive industry and should supplement personal observation by frequent and persistent inquiry.

The tabulated statements presented herewith include only establishments which reported a product of \$500 or more in value during the census year, and, so far as practicable, only those establishments operating works located within the corporate limits of the city.

TABLE I.—COMPARATIVE STATEMENT OF TOTALS UNDER GENERAL HEADS OF INQUIRY: 1880 AND 1890.

| | 1880. | 1890. |
|--------------------------------------|---------------|----------------|
| Number industries reported..... | 136 | 181 |
| Number establishments reporting..... | 1,055 | 2,300 |
| Capital (a)..... | \$ 19,430,989 | \$ 56,826,496 |
| Hands employed..... | 21,724 | 48,771 |
| Wages paid..... | \$ 8,502,935 | \$ 27,596,408 |
| Cost of materials used..... | \$ 31,629,737 | \$ 58,763,062 |
| Miscellaneous expenses (b)..... | | \$ 4,690,406 |
| Value of product..... | \$ 48,604,050 | \$ 104,199,169 |
| Municipal Data—Population..... | 160,146 | 261,353 |
| " " Assessed valuation..... | \$ 70,548,104 | \$ 99,614,055 |
| " " Municipal debt (c)..... | \$ 6,467,046 | \$ 6,143,206 |

^a The value of hired property is not included for 1890, because it was not reported in 1880.

^b No inquiry in 1880 relating to "miscellaneous expenses."

^c The amount stated represents the "net debt," or the total amount of municipal debt less sinking fund.

For the purpose of ready comparison, Table I presents the statistics of 1880 and 1890 in the form of publication used in the reports of 1880. In comparing industrial statistics for 1880 and 1890, it should be borne in mind that

radical changes have been made in 1890 as well in the form and scope of inquiry as in the method of presentation.

The form of question respecting capital used at the census of 1880 was as follows: "Capital (real and personal) invested in the business." It became evident from the results then obtained that this question was neither sufficiently comprehensive nor properly understood, and therefore the full amount of capital employed in productive industry was not reported, thus forming an erroneous basis for deductions.

The present census inquiry respecting capital is intended to comprehend all the property or assets strictly pertaining to a manufacturing business, whether such property is owned, borrowed, or hired. The value of hired property is not included in the amount stated for 1890 in Table 1, because it is not reported in 1880, and its inclusion would therefore render the comparison misleading. It will, however, be specifically stated for each industry in final reports.

TABULAR STATEMENTS FOR 1890.—The various subheads into which the inquiry of 1890 is divided, excepting wage statistics by classes, will be found in Table 2 for important industries. The statements for each industry are intended to present the true amount of capital employed, the amount paid in wages, and the number of hands employed in the respective industries, the cost of materials used, miscellaneous expenses, and the value at the works of goods manufactured, as compiled from individual reports of manufacturers.

LABOR EMPLOYED AND WAGES PAID.—In the form of inquiry used in the Eleventh Census respecting labor and wages, the classified occupation and wage system was adopted. Officers or firm members engaged in productive labor or supervision of the business constitute one class, for which the wages reported are those which would be paid to employees performing similar service. Clerical labor is embraced by distinct classification, also piecework.

Wage workers proper are divided into two classes:

First. Operatives, engineers, and other skilled workmen, overseers, and foremen or superintendents (not general superintendents or managers.)

Second. Watchmen, laborers, teamsters, and other unskilled workmen.

It should be noted that the first class includes all operatives, that is, those directly engaged in productive labor as well as skilled mechanics, while the second class includes all unskilled workmen other than operatives. The questions required a statement of the average number of men, women and children, respectively, employed during the year in each class, also actual amounts of wages paid to each number.

A statement was requested showing the various rates of wages per week, the average number of men, women, and children, respectively, employed at each rate, exclusive of those reported as employed on piecework, and the actual term of operation for the establishment reporting. The wage statistics compiled from the reports obtained will be stated in detail for each class in the final reports to be published for each city. In this bulletin only the aggregate wages paid is given.

MATERIALS USED AND GOODS MANUFACTURED.—Against the caption "materials used" is presented the reported cost at the place of consumption of all materials used, and against "goods manufactured" is the reported market value at the factory of the total product, not including any allowance for commissions or expenses of selling.

In this connection it must be considered that the difference between apparent cost and value of manufactured product as presented cannot be taken as a correct indication of manufacturers' net profits, because many other items of expense enter into the mercantile portion of the business not within the scope of the census inquiry.

Expenses of selling are excluded, because the reported value of product is its selling value "at the shop or factory." The cost of depreciation of plant in excess of the expense for ordinary repairs is not included, because the information obtained by the inquiry is not sufficient to form a basis for accurate computation for the respective industries.

ROBERT P. PORTER,
Superintendent Eleventh Census.

TABLE 2.—DETAILED STATEMENT FOR 1890 BY IMPORTANT INDUSTRIES. (a)

| CLASSIFICATION OF INQUIRIES. | Clothing— wholesale. (<i>n</i>) (24 establish- ments.) | Flouring and grist mill products. (6 establish- ments.) | Foundry and machine shop products. (104 establish- ments.) | Iron and steel. (<i>n</i>) (21 establish- ments.) | Liquors—malt. (16 establish- ments.) |
|--|--|---|--|--|--|
| CAPITAL EMPLOYED—Aggregate..... | \$ 1,618,178 | \$ 448,582 | \$ 7,997,233 | \$ 13,738,850 | \$ 3,708,045 |
| Hired Property—Total..... | 385,833 | 29,655 | 582,655 | 207,577 | 127,500 |
| Plant—Total..... | 41,155 | 298,500 | 3,317,615 | 7,391,744 | 2,308,102 |
| Land..... | ..... | 36,000 | 579,975 | 1,414,068 | 342,500 |
| Buildings..... | ..... | 33,000 | 945,936 | 1,833,510 | 1,273,114 |
| Machinery, tools, and implements..... | 41,155 | 169,500 | 1,791,704 | 4,144,966 | 662,488 |
| Live Assets—Total..... | 1,181,390 | 120,427 | 4,096,963 | 6,139,229 | 1,272,443 |
| Raw materials..... | 307,779 | 33,027 | 551,471 | 768,411 | 283,649 |
| Stock in process and finished product..... | 304,657 | 24,600 | 1,107,636 | 2,038,857 | 363,394 |
| Cash, bills and accounts receivable, and all sundries not elsewhere reported..... | 5,65,554 | 62,800 | 2,437,856 | 3,332,761 | 645,400 |
| Wages Paid—Aggregate..... | \$ 863,179 | \$ 80,476 | \$ 4,533,223 | \$ 5,702,116 | \$ 446,372 |
| Average number of hands employed during the year..... | 1,833 | 126 | 8,155 | 9,310 | 516 |
| Males above 16 years..... | 338 | 123 | 6,589 | 8,495 | 516 |
| Females above 16 years..... | 49 | 3 | 63 | 31 | ..... |
| Children..... | ..... | ..... | 124 | 143 | ..... |
| Pieeworkers..... | 1,446 | ..... | 1,349 | 642 | ..... |

TABLE 2—Continued.

| CLASSIFICATION OF INQUIRIES. | Clothing— wholesale. (b) | Flouring and grist mill products. | Foundry and machine shop products. (b) | Iron and steel. (b) | Liquors—malt. (16 establish- ments.) |
|---|-----------------------------|---|--|---------------------------|--|
| | (24 establish- ments.) | (6 establish- ments.) | (14 establish- ments.) | (21 establish- ments.) | (16 establish- ments.) |
| MATERIALS USED—Aggregate cost..... | | | | | |
| Principal materials..... | | | | | |
| Fuel..... | 2,420,834 | 1,850,110 | 5,583,222 | 13,590,346 | 837,527 |
| Mill supplies..... | 3,036 | 10,940 | 211,230 | 2,130,686 | 44,164 |
| All other materials..... | 7,930 | 13,100 | 59,933 | 48,538 | ..... |
| | | 101,855 | 343,224 | 568,987 | 16,100 |
| MISCELLANEOUS EXPENSES—Aggregate..... | | | | | |
| Amount paid for contract work..... | | | | | |
| Bent..... | 18,606 | ..... | 52,439 | ..... | 13,566 |
| Power and heat..... | 51,418 | 2,076 | ..... | ..... | 10,200 |
| Taxes..... | 1,258 | 2,005 | 9,690 | 500 | ..... |
| Insurance..... | 5,841 | 4,855 | 41,402 | 58,024 | 416,169 |
| Repairs, ordinary, of buildings and machinery..... | 6,539 | 10,281 | 39,767 | 33,222 | 23,919 |
| Interest on cash used in the business..... | 3,960 | 6,830 | 91,316 | 414,389 | 51,616 |
| All sundries not elsewhere reported..... | 9,128 | 7,835 | 88,119 | 37,943 | 3,040 |
| | 27,744 | 1,425 | 1,425 | 550,514 | 205,540 |
| GOODS MANUFACTURED—Aggregate value..... | | | | | |
| Principal product..... | \$ 3,972,392 | \$ 2,345,688 | \$ 13,432,334 | \$ 23,982,430 | \$ 3,011,555 |
| All other products, including receipts from custom work and repairing..... | 3,972,392 | 2,203,978 | 13,064,012 | 23,887,435 | 2,841,955 |
| | | 141,610 | 3,68,322 | 94,995 | 166,860 |

TABLE 2—Continued.

| CLASSIFICATION OF INQUIRIES. | Lumber—planing mill products. (a) (15 establishments) | Paints. (16 establishments.) | Printing and publishing. (u) (33 establishments.) | Shipbuilding. (8 establishments.) | Slaughtering and meat packing. (b) (21 establishments.) |
|--|--|---------------------------------|--|--------------------------------------|--|
| CAPITAL EMPLOYED—Aggregate..... | \$ 1,346,648 | \$ 1,661,003 | \$ 2,627,436 | \$ 2,587,775 | \$ 810,957 |
| Hired Property—Total..... | 114,166 | 106,163 | 681,650 | 6,000 | 57,277 |
| Plant Total..... | 487,655 | 581,617 | 1,184,496 | 1,335,375 | 360,890 |
| Land..... | 73,700 | 128,250 | 54,600 | 514,500 | 155,700 |
| Buildings..... | 143,800 | 187,500 | 177,370 | 336,075 | 96,150 |
| Machinery, tools, and implements..... | 270,155 | 285,767 | 952,526 | 461,800 | 119,010 |
| Live Assets—Total..... | 744,827 | 976,323 | 661,289 | 1,246,400 | 382,820 |
| Raw materials..... | 290,439 | 183,121 | 128,454 | 45,500 | 21,470 |
| Stock in process and finished products..... | 67,900 | 377,503 | 68,181 | 536,300 | 193,275 |
| Cash, bills and accounts receivable, and all sundries not elsewhere reported..... | 386,488 | 415,689 | 466,654 | 644,600 | 178,076 |
| WAGES PAID—Aggregate..... | \$ 500,265 | \$ 243,830 | \$ 1,191,220 | \$ 1,188,662 | \$ 288,673 |
| Average number of hands employed during the year..... | 883 | 385 | 1,789 | 2,083 | 474 |
| Males above 16 years..... | 864 | 288 | 1,326 | 1,876 | 473 |
| Females above 15 years..... | 213 | 22 | 168 | 10 | 1 |
| Children..... | 4 | 41 | 286 | 207 | ..... |
| Pieceworkers..... | | | | | |

TABLE 2—Continued.

| CLASSIFICATION OF INQUIRIES. | Lumber—planing mill products. (a) | Paints. | Printing and publishing. (a) | Shipbuilding. | Slaughtering and meat packing. (b) |
|--|-----------------------------------|----------------------|------------------------------|---------------------|------------------------------------|
| | (15 establishments.) | (16 establishments.) | (93 establishments.) | (8 establishments.) | (21 establishments.) |
| MATERIALS USED—Aggregate cost..... | \$ 1,386,039 | \$ 1,186,100 | \$ 791,537 | \$ 1,442,045 | \$ 5,013,570 |
| Principal materials..... | 1,353,784 | 1,162,274 | 755,056 | 1,273,895 | 4,881,174 |
| Fuel..... | 3,255 | 11,301 | 12,041 | 26,050 | 15,165 |
| Mill supplies..... | 20,000 | 12,025 | ..... | ..... | ..... |
| All other materials..... | 6,900 | 500 | 24,380 | 136,510 | 117,280 |
| MISCELLANEOUS EXPENSES—Aggregate..... | \$ 22,730 | \$ 59,676 | \$ 231,303 | \$ 75,921 | \$ 31,028 |
| Amount paid for contract work..... | | | | | |
| Rent..... | 11,500 | 8,463 | 3,400 | 390 | 5,155 |
| Power and heat..... | 3,130 | 8,605 | 54,532 | ..... | ..... |
| Taxes..... | 6,075 | 5,582 | 8,899 | 8,169 | 4,486 |
| Insurance..... | 3,500 | 6,376 | 6,615 | 5,387 | 4,278 |
| Repairs, ordinary, of buildings and machinery..... | 1,500 | 15,851 | 12,730 | 44,740 | 5,775 |
| Interest on cash used in the business..... | 25 | 9,638 | 10,008 | 14,575 | 7,735 |
| All sundries not elsewhere reported..... | | 13,151 | 7,951 | 127,168 | 3,590 |
| GOODS MANUFACTURED—Aggregate value..... | \$ 2,208,997 | \$ 2,008,936 | \$ 3,147,426 | \$ 3,091,300 | \$ 8,673,966 |
| Principal product..... | 2,164,497 | 2,005,338 | 3,145,601 | 2,888,400 | 8,436,256 |
| All other products, including receipts from custom work and repairing..... | 44,500 | 3,648 | 1,825 | 213,300 | 237,710 |

^a To avoid disclosure of operations of individual establishments, only such industries as have three or more establishments engaged therein are included.

^b Includes several branches of this industry, which will be specifically stated in final reports.

^c Includes internal revenue taxes.

VALUE OF PRODUCT COMPARED WITH COST OF MATERIAL AND WAGES PAID.

Value of Product 1890 . . . \$104,199,169

Value of Product 1880 . . . \$48,604,050.

Cost of Materials 1890 . . . \$58,768,062

Cost of Materials 1880, \$31,629,787.

COMMENT FROM MR. PORTER.

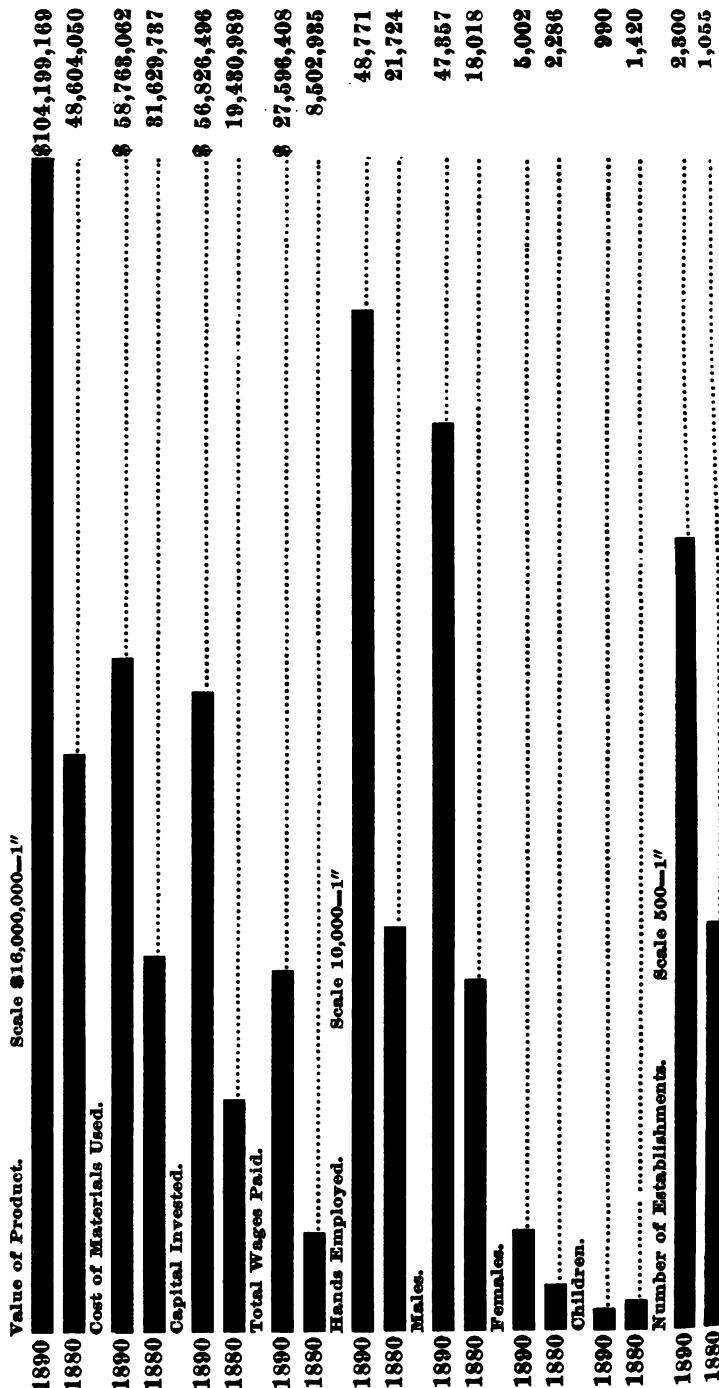
The foregoing bulletin contains practically the final reports from the census office on the mechanical and manufacturing industries of the city. In an address before the Cleveland Board of Industry and Improvement in April last, Mr. Porter presented much the same line of figures, although not as complete as those contained in the bulletin of Oct. 8, and in commenting on them said :

“This comparison speaks for itself. In ten years you have doubled the number and the value of the product of your establishments. You have nearly trebled the capital invested in manufactures, multiplied the total number employed two and a half times, and you are paying out annually in wages more than three times as much as you did in 1880. We have carefully filed away in Washington a schedule sworn to by the special agent as a true and faithful statement of the condition of every one of the 2,300 manufacturing establishments of this city. These statements are cold, clear, official statements of facts, and not warmly colored, exaggerated offerings to the altar of local pride. They show exactly what you have done the last ten years, and it affords me great pleasure to congratulate you on the tremendous showing, for such it is. It places Cleveland in the front rank as one of the great manufacturing cities of the Union. I hope it will encourage your enterprising merchants and manufacturers and financiers to renewed efforts for the decade you have already entered upon with such great prestige.

“I doubt whether a more interesting comparison of your manufacturing industry is possible than that of the difference in cost of material and value of product, for this might be called the enhanced value due to manufacture and really represents what the industry and capital of your city has accomplished. In 1880, this enhanced value amounted to \$16,974,313, while in 1890 it amounted to \$40,745,701, an increase of about 150 per cent. This may be considered as a gauge of your industrial enterprise. You have in fact

nearly trebled your effective product. In comparing statistics of manufacture for different places, this enhanced value should always be considered. Neither capital invested, cost of material, nor value of product alone are fair gauges for measuring industrial enterprise. For example, compare your 21 slaughtering and packing establishments. The value of your product here amounts to \$8,673,966, while the value of products of your shipbuilding establishments amounts to only \$3,091,300. Yet in the latter industry you employ 2,083 hands as against 474 in the former. The explanation of this is simply that in the case of slaughtering and packing establishments the enhanced value amounts to only 59 per cent. of the material used, while in the matter of shipbuilding it amounts to 114 per cent. You are probably doing relatively less slaughtering and meat-packing, and more shipbuilding, and hence it is, that while the value of your products has increased only 112 per cent., the amount you pay in wages has increased 217 per cent."

MANUFACTURING INTERESTS OF CLEVELAND.



VI.—THE IRON AND STEEL INDUSTRY.

ANNUAL CAPACITY OF CLEVELAND BLAST FURNACES AND IRON AND STEEL MILLS.

(From Reports of American Iron and Steel Association.)

| | <i>Net Tons.</i> |
|--|------------------|
| Pig iron..... | 275,000 |
| Bessemer and open-hearth steel, blooms, billets and slabs..... | 545,000 |
| Rails..... | 100,000 |
| Wire rods..... | 288,000 |
| Merchant bars and shapes..... | 108,500 |
| Plates, axles, iron and steel forgings, etc..... | 210,000 |

BLAST FURNACES.

In the preceding tabulated statements from the Census Bureau, it is shown that 125 establishments classified under two general headings, including blast furnaces, iron and steel mills, nut and bolt manufactories, foundries, machine shops, etc., turned out in 1890 a product valued at \$47,364,764, and employed hands to the number of 17,465. It is not the intention to go into detail regarding all of these establishments; it would not be possible to do them justice in this work, and reference is made to only the most important of them.

Cleveland has four large blast furnace plants with five stacks, having a total annual capacity of 275,000 net tons of pig iron, or a trifle less than 800 tons daily. At a low estimate the value of the annual product of these furnaces, run-

ning at full capacity, would be \$4,125,000. The Cleveland Rolling Mill Company, the largest concern engaged in the production of iron and steel in the city, owns two of these furnace plants, one known as the Central Furnace, on the Flats, and the other, the Newburg Furnace, is on the grounds occupied by the immense rolling mills of the firm in an outlying portion of the city, at one time known as Newburg. The Central furnace has two stacks and the Newburg furnace one stack, the three having an annual capacity of 180,000 net tons. The product is mainly No. 1 Bessemer pig. The fuel used in these furnaces, as in all Cleveland furnaces, is coke, and the ore is, of course, from the Lake Superior district.

Another furnace located in the southeastern portion of the city is the "Emma," which is owned by the Union Rolling Mill Company and is a part of the iron works of that company. The product of this furnace, which was recently remodeled, is Bessemer, foundry and forge pig iron, and the annual capacity 55,000 net tons.

The fifth furnace is that operated by Pickands, Mather & Co., of Cleveland, and known as the River furnace, on account of its location on the river in the busiest portion of the manufacturing district on the Flats. The product of this furnace is high grade foundry pig iron, and its capacity is 40,000 tons annually.

IRON AND STEEL MILLS.

CLEVELAND ROLLING MILL COMPANY.—In September, 1892, the Cleveland Rolling Mill Company, capitalized at \$4,000,000, was employing in its various departments no less than 3,500 hands. This does not take into account any of the interests of the stockholders of the company, who control iron ore mines in the Lake Superior district, and own steel vessels on the lakes valued at \$725,000. The mines and vessels engaged in furnishing iron ore to the blast furnaces are controlled by separate companies. At no

time in the history of this great corporation, which bears a most important relation to the advancement of Cleveland as a manufacturing city, have its affairs been in a more prosperous condition. The company's plant in several departments has been and is now being remodeled on a grand scale. A new blooming mill has just been constructed at a cost of \$250,000, and preparations are now being made for the adoption of the direct process in the manufacture of low phosphorus steel. This will necessitate the building of an entire new steel mill with three 10-ton converters, upon which work will begin during the present year.

These improvements are mentioned simply as an indication of progress in connection with this immense concern. Its present works have a national reputation for the manufacture of almost every variety of steel and iron. The products, irrespective of blast furnaces, include Bessemer and open hearth blooms, billets and slabs, beams, channels, angles, and all other structural shapes, Bessemer steel rails, small T and tram rails, steel wire rods, merchant, spring toe-calks and sleigh shoe steel, steel tires, hoops, and forgings, wire, plain and barbed, steel boiler and tank plate, galvanized and black sheet iron, and corrugated roofing and siding.

The present Bessemer steel works have two 10-ton converters, with an annual capacity of 180,000 net tons of ingots, and the open-hearth steel works comprises two 15-ton and two 7-ton open-hearth furnaces, with a capacity of 40,000 net tons of ingots. The capacity of the blooming mill is 250,000 net tons of blooms, billets and slabs, and the rail mills, comprising five heating furnaces and one train of rolls, have an annual capacity of 100,000 tons of rails. In addition, there are three rod mills with five trains of rolls, and an annual capacity of 125,000 tons; wire mills having an annual output of 50,000 tons of finished wire; structural and bar mills, capacity 55,000 tons of merchant bars and shapes; plate mills, with six puddling furnaces, nine heating furnaces, two busheling furnaces, eight knobbling fires and four trains of rolls and a galvanizing works attached, with an annual capacity of 15,000 tons. The company also has a

foundry, a forge, machine shops, and barb-wire fence manufactory.

Oil, and gas made from oil, are used largely as fuel in these works.

OTIS STEEL COMPANY, LIMITED.—The Otis Steel Works, sold to an English corporation three years ago at a cost of about \$4,000,000, of which \$3,000,000 was in cash, are the largest and most thoroughly organized and profitable plant engaged exclusively in the manufacture of steel in this country. The works occupy approximately twenty-four acres on the lake shore, within a mile and a half of the central portion of the city, and some idea of the value of the property may be gained from the fact that land, buildings and equipment were at the time of the transfer appraised at \$3,213,965. The works are most favorably situated as regards transportation, and land is continually being reclaimed from the lake by filling up the frontage of the property with spoil and refuse. The buildings are substantial and commodious, and the works are equipped with the best modern machinery, tools and appliances to economize labor and material. They are capable of turning out 80,000 tons of steel per annum, chiefly steel boiler and ship plates, tires and axles, billets and forgings. The steel, which is well known as "Otis steel," is held in high repute by railway companies, ship builders and boiler makers all over the United States, and, being a specialty, is not subject to the fluctuations of ordinary steel. In Cleveland alone the estimated consumption of high class steel is 2,000 tons a week, so that the requirements of the city and the shipping trade of the lakes are sufficient to keep a large portion of the works in regular employment.

For the manufacture of steel plate, bar steel and forgings, of which the annual capacity is 40,000 net tons, this company has two rotary puddling furnaces, fourteen Siemens heating furnaces, nine hammers, seven 15-gross-ton open hearth steel furnaces, and three trains of rolls. In addition, there are two 5-ton converters, capacity about 40,000 tons annually, for the production of Bessemer steel for wire rods, used largely by the American Wire Works, a manufactory controlled by Cleveland stockholders in the Otis works.

Oil is used for fuel to some extent in these works, but the company has its own gas works and pumping houses, drawing a large portion of its supply of water from the lake. About 1,100 hands are employed in all departments.

LAKE ERIE IRON COMPANY.—The main works of this company are also situated on the lake shore, at the mouth of the river, where facilities for transportation, supplies of raw material, fuel supplies, etc., are most advantageous. This company has no blast furnaces, but is, of course, at no great disadvantage in this regard, as supplies are close at hand. The plant consists of sixteen single puddling and nineteen heating furnaces, four trains of rolls and thirteen hammers, and the product is locomotive and car axles, iron and steel forgings of every description, iron shafting up to 20-inch round and merchant bar iron, for all of which there is an annual capacity of 19,000 net tons.

A nut and bolt shop, owned by the Lake Erie Iron Company, is situated about two miles east of the company's iron mills, also on the lake shore, and is referred to in connection with other companies operating in that line.

UNION ROLLING MILL COMPANY.—The blast furnace (referred to in a previous paragraph) and mills of this company, located also in the Newburg district, cover seven acres of ground, and the equipment is of the very best, giving employment to about 400 hands. Leading stockholders of the company are interested in the manufacture of nuts and bolts in big establishments located in the city. The capital of the Union Rolling Mill Company, organized in 1880, is \$500,000. The mills, which are among the oldest in the city, have been in operation since 1875.

The works comprise nineteen single puddling furnaces, six heating furnaces with Siemens gas producers and three trains of rolls. The product includes bar iron, angles, fish plates, shafting and light T and steel rails. The specialties are "Union Refined" bar and cold-straightened shafting. The mills have a daily capacity of 120 tons of finished iron.

CLEVELAND CITY FORGE AND IRON COMPANY.—The largest vessels of war in the United States Navy, as well as

thousands of merchant carriers flying the stars and stripes on the Great Lakes, and in all parts of the world, are supplied with the heaviest forgings known to iron masters from the works of the Cleveland City Forge and Iron Company. Only one other forge in the world, that of the Krupps, in Germany, which was recently called upon by the Clyde builders of the immense new Cunard Line passenger steamers for forgings of great proportions, can be contrasted with these Cleveland works. The company's premises cover several acres in the best portion of the manufacturing district, extending east from the central portion of the city along the shore of the lake, and the equipment, especially as regards the wonderful size of steam hammers, is a matter of special pride to the iron and steel interests of the country. Shafts, beams and stern posts made for vessels of the new United States Navy in these works have been subjects of discussion among naval engineers and in scientific journals almost constantly for four or five years past. All kinds of forgings are turned out by this company, its product in car axles alone numbering 110,000 annually.

BRITTON IRON AND STEEL COMPANY.—This company's mill, which was built in 1853, was remodeled last year, and the owners, who are directors in the Standard Oil Company, now contemplate still further improvements on a large scale. The works have been producing, with a capacity of 10,000 net tons annually, black and galvanized iron and steel plates and sheets, but it is now proposed to erect two 20-ton open hearth steel furnaces and a universal mill for heavy plates. There are at present in the works six single puddling and six knobbling furnaces, ten heating furnaces, five trains of rolls and one hammer.

BRITTON ROLLING MILL COMPANY.—In May of last year, this company, which is a concern entirely independent of the Britton Iron and Steel Company, began business in a plant on the shore of the lake near the eastern limits of the city. The works produce iron and steel plates and heavy sheets and have a capacity of 6,000 net tons annually. There are three heating furnaces and one 24-in. by 72-in. train of rolls.

TIN PLATE WORKS.

The Britton Rolling Mill Company, referred to above, has now part of the machinery in place for a complete tin plate plant, to be finished January 1, 1893. Additions are being made to the rolling mill for the manufacture of black plates, and the estimated weekly capacity of the new plant in tin and terne plates is 2,500 boxes, or about 125,000 boxes annually. This mill will give employment to about 250 hands, and the value of the product annually will be about \$750,000.

Since October, 1891, the Cleveland Tin Plate Company, the directors of which are also interested in the Britton Rolling Mill Company, has been manufacturing tin and terne plates to the extent of 250 boxes weekly in a works which is, of course, smaller than that now under construction. This works, for which black plates are now purchased, will get its supply of black plates from the mills now in course of erection, when the same are completed.

WIRE RODS, WIRE AND WIRE NAILS.

Within ten years, Cleveland has advanced to a position of prominence in the manufacture of wire rods, wire and wire nails. Two concerns making wire nails do more business in this line than any two cities in the world, and the works of one of them, now making rods, wire and nails from steel billets, is planned with a view to eventually utilizing dock property on the lake front, and making the finished nails from Lake Superior iron ore smelted in furnaces to be built on its present plant. In the manufacture of wire rods, wire and nails in Cleveland, there is employed in four establishments—the American Wire Works, HP. Nail Company, Baackes Wire Nail Company and Cleveland Rolling Mill Company, about 2,800 hands. The HP. Nail Company and Baackes Wire Nail Company have a combined capacity for

nails alone aggregating 1,600,000 kegs annually. The American Wire Works turns out 300 tons of finished product daily, while the Cleveland Rolling Mill Company, as shown in the detailed description of its works, has a capacity for 125,000 tons of rods and 55,000 tons of wire annually.

HP. NAIL COMPANY.—These works, put in operation in March, 1880, and located near the lake shore on Case avenue, contain two large gas heating furnaces, three trains of rolls and 302 wire-nail machines. The annual capacity is 1,000,000 kegs of wire nails and 48,000 net tons of rods or wire. A galvanizing plant in connection with the works has an annual capacity of 5,000 net tons of wire. Coal gas is used in the heating furnaces and fuel oil under boilers. The works cover about three acres of ground and comprise a number of detached large brick structures. The equipment includes all modern appliances which can in any way contribute to effective operations, and the production includes standard steel wire nails, cast steel wire brads and finishing nails, barbed nails, tinned nails, galvanized nails, tacks, wire rods, market and barbed fence wire, staples and bed links.

BAACKES WIRE NAIL COMPANY.—Although put in operation only last year, this second wire nail works, whose managers contemplate the erection of furnaces for the manufacture of wire and nails from the ore to the finished product, are already engaged in rolling rods, drawing wire and making nails. Their capacity, annually, is 40,000 net tons of rods, 40,000 tons of wire and 600,000 kegs of nails. The company owns twenty acres of property at the eastern extremity of the city on the lake shore. The equipment includes in addition to heating furnaces, rolls and nail making machines, eighteen boilers with engines aggregating 5,800 horse power, and a large gas works, together with galvanizing plant and barb wire fence works.

AMERICAN WIRE COMPANY.—Similar to the Otis Steel Company, to which this company bears close relations, on account of controlling stockholders being the same in both concerns, the American Wire Company has attained sub-

stantial prosperity by steady adherence to the highest standard of production. The works are among the most important of their kind in the country. They are located between the Lake Shore and Cleveland & Pittsburg railways in the center of the manufacturing district that extends east along the shore of the lake, railway switches running into and through the grounds, and the company having locomotive power of its own on the premises. The business, begun in November, 1886, was established for the manufacture of wire rods. A specialty is made now of galvanized, tinned, coppered and fine quality of wire, the company being prepared to meet almost every demand of the trade. Employment is given to about 1,100 hands, the great majority of whom are skilled workmen.

The plant for the manufacture of rods comprises one Belgian rod mill, with four gas producers, three heating furnaces and four trains of rolls; one continuous rod mill, with three gas producers, two heating furnaces and three trains of rolls. The capacity in rods is 75,000 net tons annually. In the continuous rod mill the steel billets go into the furnace and are manufactured into rods in one continuous operation. The general equipment of the works includes thirty-six boilers and seven engines, aggregating 25,000 horse power.

SCREW AND TACK COMPANIES.—Two large screw and tack manufactories, having a combined capital of about \$750,000, have also built up an extensive and prosperous business here. They are the Union Steel Screw Company and the National Screw and Tack Company, both located on the line of the Cleveland & Pittsburg Railway. They employ together about 450 hands, and their product consists mainly of steel, iron and brass wood screws, machine screws, tacks, trunk, clout and small nails, sold to manufacturers in all parts of the United States.

NUTS, BOLTS, WASHERS, ETC.

Six big establishments engaged exclusively in the nut and bolt industry in Cleveland have a larger product than any other two cities in the United States. Eastern manufacturers have moved their works to the city on account of advantages in location as regards the increasing western trade in this line. The industry gives employment to about 1,800 workmen and the combined value of product is estimated by the manufacturers at \$2,750,000 annually. The Oliver Iron and Steel Company, of Pittsburg, and the Peck, Stow and Wilcox Company, of Southington, Ct., which has a large branch works here engaged mainly in the manufacture of hardware, as well as one concern in Buffalo, do a very large business in nuts and bolts, but in none of the large iron producing centers can the output be compared to that of Cleveland.

The leading works in Cleveland are the Lake Erie Iron Company, Lamson and Sessions Company, Upson Nut Company, Colwell and Collins Company, Chapin Bolt and Nut Company, and Bourne and Knowles Manufacturing Company. The Lamson and Sessions Company was established at Mt. Carmel, Ct., and the Upson Nut Company at Unionville, Ct., but these concerns have built up big works here, on account of a centralization of hardware interests in Cleveland. In these several plants, which represent an actual investment of capital in the neighborhood of \$2,000,000, the product includes almost every variety of nuts, bolts and washers, as well as a few specialties in carriage hardware, boxwood rules, levels, iron planes, etc. The machinery is all of the latest improved pattern and the goods are shipped to foreign markets as well as the United States and Canada. Hot forged nuts, cold forged nuts, wrought and cast washers, common carriage and tire bolts, stove, plow, track and machine bolts, bolt ends, coach screws and rivets, are all included in the product of these manufactories.

CAR WHEEL WORKS—PIPE FOUNDRIES.

Five car wheel works in Cleveland have capacity for the manufacture of 335,200 wheels annually, according to the authentic reports of the American Iron and Steel Association, and the industry is among the largest and most prosperous branches of the iron trade. These manufacturers, who are known in all parts of the country, are: Maher & Brayton, operating the Cleveland Wheel and Foundry Works; Bowler & Co., operating the Cleveland Foundry; Dorner & Dutton, Fulton Foundry Company, and the Paige Car Wheel Company.

The Cleveland Wheel and Foundry Company's works has been in operation since 1880, and includes four cupolas with an aggregate capacity of 150 tons daily. The company gives employment to 250 to 300 workmen, and engages, alike to the other car wheel makers, in general foundry work mainly for railways. The product of the works in wheels is cast iron.

Bowler & Company, employing about 200 hands, manufacture chilled car, engine truck and mining wheels, steel tired wheels, street railway wheels, turnouts of every kind, and railroad and heavy castings of all descriptions, as well as architectural iron work. This company has capacity for the manufacture of 100,000 wheels annually.

The Fulton Foundry Company, making steam, street, steel tired and mine car wheels, has capacity for a product of 10,000 steam, 10,000 street, and 1,200 steel tired wheels annually. Turn tables, transfer tables, and track castings are also leading products, and the trade, alike to that of other companies here, is to some extent carried into Mexico and South America, as well as the United States and Canada.

Dorner & Dutton's works are capable of making 25,000 chilled iron wheels per annum, and the Paige Car Wheel Company, manufacturing street-tired wheels, produces 14,000 tons a year. The works of the Paige Car Wheel Company are the largest of their kind in the United States.

One cast iron pipe works in Cleveland, that of the Lake Shore Foundry Company, has a daily melting capacity of 300 net tons, and makes pipes in sizes from 3 to 48 inches. The products embrace car, bridge and general castings as well as cast iron, gas and water pipe, and the works employ 500 men.

MALLEABLE IRON.

Cleveland is the headquarters of the malleable iron industry of this country. The largest works of this kind in the United States are located here. They are a part of the National Malleable Castings Company, in which the malleable iron works of Chicago, Indianapolis and Toledo were united in January of last year. The parent establishment in Cleveland, which was the first to be erected west of the Alleghenies, was founded in 1868 with a capital of \$50,000, by Mr. A. A. Pope, who is now at the head of the combined works, having a capital of \$3,000,000 and employing 3,500 workmen. The officers of the national concern are here and its managing directors live here, the business in Chicago, Indianapolis and Toledo being conducted by resident agents.

The Cleveland plant, which was formerly known as the Cleveland Malleable Iron Works, comprises ten acres near the intersection of Woodland avenue and the Cleveland & Pittsburgh Railway, covered with substantial buildings, which are equipped with a vast amount of machinery specially designed for the company. In these works about 1,200 hands are employed, and the product includes every description of refined malleable iron castings, a specialty being made of railroad and car castings.

STEEL HOLLOWWARE AND GENERAL HARDWARE.

In the manufacture of heavy steel hollowware and general hardware, employment is given to about 800 hands in half a dozen establishments, two of which are of special importance. The Avery Stamping Company, having works on Lake street, near Case avenue, and known to the trade through the Bronson Supply Company, which controls the sales part of the business, has built up here within a very short period a trade in heavy steel hollowware that extends to all parts of the world. The product is mainly wrought steel cooking utensils and elevator buckets, and in these lines the works, which employ 200 hands, are cutting up eight tons of sheet steel daily. It is the only works in the country making heavy goods of this kind. The machinery is all of special make, and the product a high standard of goods in which a profitable and prosperous business was assured from the start.

The Peck, Stow and Wilcox Company, known to the hardware trade as the largest concern in the world in its special lines, has of late built up in Cleveland a manufacturing business that presents strong evidence of the importance of the city as a hardware center. This company, which was founded at Southington, Conn., and which operates works in Southington, Plattsville and East Berlin, Conn., has a Cleveland plant embracing three large buildings and occupying a whole block on Seneca and Cuyahoga streets. The equipment includes two cupolas of 15,000 and 25,000 pounds capacity, with furnaces, hammers, improved machinery and mechanical power supplied by a 350 horse power engine. The works employ 400 hands, manufacturing hardware of every conceivable pattern, such as sash fasteners, pulley lifts, door bolts, hinges, latches, wrenches, steel beams, steelyards, etc.

There are in addition several small concerns engaged in this industry in Cleveland, and in builders' hardware the combined product is quite large.

CARRIAGE AND WAGON HARDWARE.

At a low estimate, the value of carriage, wagon and saddlery hardware turned out in Cleveland annually is \$4,750,000. Two concerns engaged in this business here have a world-wide reputation. They employ about 1,200 hands and have facilities unequalled by their competitors in other parts of the country. They are here because in hollowware, in nuts and bolts and the various hardware lines, Cleveland is not only one of the greatest jobbing centers in the United States, but the city offers special advantages for manufacturers in these lines.

The Eberhard Manufacturing Company, capitalized at \$400,000, was established in 1879. The premises, on the Cleveland & Pittsburgh Railway near Woodland avenue, cover thirteen acres, on which are thirty-five buildings. The production covers thousands of different articles coming under the head of carriage, wagon and saddlery hardware. The goods are sold mainly in the United States and Canada, but the company's export business extends to nearly all parts of the world.

The Cleveland Hardware Company's works, near Case avenue, in the manufacturing district fronting on the lake, is equipped for the manufacture of shapes for wagons, carriage and sleigh hardware, rolled from muck bar and steel, and has a capacity of 8,500 net tons annually. The works contain one heating furnace with a gas producer and one 10-inch train of rolls. Workmen to the number of 200 are employed in this establishment.

STEEL SHOVELS, SPADES AND SCOOPS.

This is another branch of the hardware industry represented by one big factory here, the Chisholm Steel Shovel Works. There are about twelve manufactories of shovels

in the United States, and the Cleveland works are one of the largest. Beaver Falls, N. Y., and Pittsburgh, Pa., have large factories, but a feature of great value in the product of the Cleveland works is the fact that the steel portion of the shovel, spade or scoop is made from a single solid piece. The works are located on Case avenue and the Cleveland & Pittsburgh Railway, and have direct track connections for receiving materials and fuel supplies, and for making shipments by rail. This company manufactures, under patents, hoisting engines for land and marine work, and also cranes and transmitting machinery for coal, ore, and other heavy freight.

BRIDGE BUILDERS AND MANUFACTURERS OF HOISTING AND CONVEYING MACHINERY.

A business of \$2,000,000 a year is credited to one corporation, the widely known King Bridge Company, operating in this line in Cleveland. Such an immense volume of work would, of course, vary materially in different years and includes the purchase of right of way for toll bridges in all parts of the country, but the statement as made is practically correct and will serve to show the wonderful extent of this industry. The King Bridge Company has one of the largest bridge and structural iron and steel plants in the country, covering an area of 155,000 square feet, and its iron and steel bridges are in use in every State and Territory in the Union, being well known in Maine, California and Texas, as well as all the Middle and Western States, and Canada, Mexico and South America. The late Zenas King, founder of these works, built the first iron bridge west of the Rocky Mountains, and the company has erected over 200 miles of bridges.

The company is capitalized at \$1,000,000 and executes construction contracts for iron, steel and combination bridges, iron and steel structural work for buildings, roofs, furnace

plants, mills, etc.; also in all cases where any style of fire-proof construction is desired, or where special styles of hoisting and conveying machinery for handling ore and coal is demanded. The works, in the north-eastern part of the city on the Lake Shore and Cleveland & Pittsburg railways, have a capacity for the production of 20,000 net tons of finished work annually, and employ 500 hands, with as many more engaged on outside portions of contracts. This company built the highway bridge between Cincinnati and Newport, across the Ohio River, one of the greatest engineering achievements of the century. They have recently been at work on the Hall of Mines and Mining and the Agricultural and Horticultural Halls of the World's Columbian Exposition, Chicago. Among other big works executed by them are the Central viaduct, Cleveland; Twelfth street viaduct, Eighteenth street draw bridge and Adams street swing bridge, Chicago; draw bridge over tidal canal, Oakland Harbor, Cal.; P. & P. U. Railway bridge over Illinois river, Peoria, Ill.; bridge across Mississippi River at Twentieth avenue, Minneapolis, and numerous other structures of equal importance.

On the lakes where vessels of 2,000 to 4,000 tons capacity are loaded with iron ore in two to four hours and unloaded in a single day, there has sprung up a wonderful demand for hoisting and conveying machinery specially designed for rapid work in handling coal and iron ore, and Cleveland has a monopoly of the manufacturing business in this line. The Brown Hoisting and Conveying Machine Company, Mc-Myler Manufacturing Company, Excelsior Iron Works and Variety Iron Works are all big establishments operating in this line and employing about 1,000 workmen. The Variety Iron Works, as its name implies, engages in various branches of the iron industry, including bridge building, the manufacture of tanks and boilers, foundry supplies, foundry and machinery work. This company has two plants, one on the Flats and the other on Hamilton street near Case avenue.

The Brown Hoisting and Conveying Machine Company, working under the various patents of Alexander E. Brown,

vice-president and general manager of the concern, has for twelve years past been erecting on the lakes and elsewhere machinery specially designed for hoisting and conveying iron ore. It is a positive acting automatic machine that will take material either from or to any desired point on its line and raise, lower or dump the same at the will of the operator. It hoists from vessel, car or mine and is equally useful in conveying material across rivers or ravines,—a clear span of 1,500 feet being possible—or carrying material long distances over rough or hilly country, where an ordinary tramway would be impossible. Among the styles of conveyers, the principal are bridge, shed, cable and suspended beam tramway systems, which, with the bucket truck, sheaves, friction clutch, hook, etc., are all of improved design, secured by patents. The company also manufactures automatic dumping buckets, a patent furnace hoist for charging blast furnaces and kilns and a steam power traveling crane with cantilever extension. The works employ from 300 to 500 men. Its machines and systems are largely used abroad as well as in this country, and 75 per cent. of the ores coming from the Lake Superior district to Lake Erie are handled by this machinery. The bridge and shed tramways are used by leading dock companies, railroad companies and coal handlers at lake ports. At Ashtabula Harbor alone twenty-eight Brown hoisting and conveying plants are in use.

The McMyler Manufacturing Company and Excelsior Iron Works, both located on Columbus street, do much the same class of work. They build dock machinery, mine haulage and quarry machinery, and make a specialty of revolving coal derricks and coal and ore buckets. Both are large plants doing a big business.

FOUNDRIES AND MACHINE SHOPS.

It would be a complicated and almost endless task to attempt to describe more than one hundred (the census gives

the number as 104) foundries and machine shops scattered throughout the city and engaged in the production of every variety of light and heavy castings, radiators and various appliances for heating purposes, tools and patent specialties almost without number, as well as the large amount of repair work necessary in all important centers of industry. The census places the total amount of capital invested in foundries and machine shops at \$7,997,233, number of hands employed 8,155, and value of product \$13,432,334.

VAPOR STOVES.

The manufacture of vapor stoves is another industry in which Cleveland leads the world. The business here, which has reached wonderful proportions, has been developed through energy and enterprise in a few years against great disadvantages. Up to 1879, comparatively few of these stoves had been put on the market. It was at that time that Mr. D. A. Dangler, now of the Dangler Stove and Manufacturing Company, who is recognized as the pioneer of this industry, commenced their manufacture with an output in 1879 of a few hundred stoves. Now there is a capital of more than a million invested in the industry and employment is given to about 1,000 workmen, most of them of a skilled class.

The works of half a dozen companies now engaged in the business, and located mainly on the line of the Cleveland & Pittsburg Railway in the vicinity of Payne and Perkins avenues, are among the finest manufacturing plants in the city. Probably no industry in its early introduction has had to contend with as many obstacles as the vapor stove, being looked upon as experimental and unsafe, while to-day they are used in almost every well regulated household in the United States. From an output of a few thousand stoves by Mr. Dangler and his associates in 1880, the business has

increased annually until in 1891 the output of these stoves reached about 200,000. During this period, important and radical changes have been made each year, and competition has brought prices of the stoves within the reach of every household. The price of gasoline has also been reduced, so that it is to-day a very cheap fuel.

There is connected with this industry a very large business in the manufacture of gasoline and oil torches, plumbers' and tinnery furniture, oil lamps, vapor street lights, etc.

VII.—OTHER INDUSTRIES.

SEWING MACHINES AND SEWING MACHINE CABINETS.

More sewing machines are manufactured in Cleveland than in any other one city in the world, and there has been built up in connection with the industry a sewing machine cabinet works, in which about 6,000,000 feet of choice selected lumber is cut up annually. About 2,000 hands find employment in these factories, and the force of agents, salesmen and clerks in and out of the city is very large. It is not claimed, of course, that either of the two large sewing machine concerns located here, the White Sewing Machine Company or the Standard Sewing Machine Company, is as large as the Singer Manufacturing Company, but the combined product of the two Cleveland works is greater than that of any other city. There are manufactured in Cleveland annually about 150,000 machines, and they are sold in all parts of the world. The White Sewing Machine Company maintains a large wholesale branch in London, through which the trade of Great Britain and the European continent is supplied. Branches are also maintained in Central America, Australia and New Zealand. The White Company also operates a large screw factory, where they not only make screws for their own use but also a large variety for sale.

The sewing machine cabinet works here referred to are owned and managed by Theodore Kundtz, and were established in 1875. The premises are on West Center and Elm streets, under the Central Viaduct, and include brick build-

ings erected at a cost of \$100,000. It is one of the largest and most complete wood-working plants in Ohio, and the machinery throughout has been specially constructed. A force of 450 to 500 hands are employed in these works, and the industry not only bespeaks enterprise for the proprietor but is also an evidence of the advantages offered by the city for manufacturers producing wood-work of all kinds.

ELECTRICAL WORKS—ELECTRICAL AND CABLE RAILWAY APPLIANCES.

Through the famous inventions of Mr. Charles F. Brush, mechanical engineer and electrical expert, and the organization in 1880 of the Brush Electric Company, with a capital of \$3,000,000, Cleveland is known to the civilized world as one of the first cities in which electricity was successfully applied for lighting and power purposes. Not only has this reputation been maintained, mainly through the importance of the Brush works as one of the greatest of modern enterprises, but other corporations of almost equal importance have since established headquarters here, and the city is to-day represented in every branch of electrical business. Electrical and cable railway equipment companies are especially numerous, and again it can be said that in the diversity of interests in this most important line Cleveland leads all American cities. A description of all these works will not be attempted. Only the most important manufactories making street railway appliances will be referred to in connection with a reference of the big Brush plant.

The Brush Electric Company, now a part of the great organization known as the General Electric Company, operates a plant covering seven acres and employing about 900 workmen. The company manufactures under the patents of Mr. Charles F. Brush and other inventors, dynamo-electric

machines for arc and incandescent lighting, electric motors, lamps and carbons, electro-plating machines, current regulators and a large number of other improved electric machines. Connected with this company and also included in the General Electric Company is the Short Electric Railway Company, organized only three years ago, but already one of the most prosperous organizations undertaking the important work of equipping street railways for rapid transit. This company is capitalized at \$5,000,000 and has equipped and put in operation, during the few years of its existence, fifty-five roads in different parts of the country. Offices are maintained by the Short Company in several leading cities, and roads built under its system are to be found in Pittsburg, Albany, Indianapolis, Louisville, Rochester, Muskegon, Mich., Jamestown, N. Y., Johnstown and Pottsville, Pa.

In the manufacture of cable railway machinery, the Walker Manufacturing Company, capitalized at \$350,000 and operating here for ten years past a works of large proportions, has a world-wide reputation. Of special importance among the productions of this company is the Walker patent differential cable drum, with loose rings for differential adjustment, dispensing entirely with any wear of the grooves or wear of the cable while on the grooves, and which are in use in many of the heaviest driving plants in the country. These drums are patented in the United States, Canada, England, France, Germany and Belgium, and about 165 of them are in use in leading cable systems throughout the world. The company also manufactures everything pertaining to complete cable plants and its product is found in cable railways in Kansas City, Mo., Washington, D. C., Butte City, Mont., Portland, Ore., Pittsburg, Pa., Cleveland, O., Seattle, Wash., Grand Rapids, Mich., Fall River, Mass., Tacoma, Wash., Denver, Col., Dallas, Tex., Brooklyn, N. Y., Baltimore, Md., Chicago, Ill., and Sidney, New South Wales. These works are not, however, engaged in the manufacture of cable machinery alone. The business is conducted on a very large scale and the product includes traveling cranes, complete outfits of hydraulic machinery, shafting, couplings, hangers, pulleys

and all kinds of power transmitting machinery, bloom shears, riveting plants, boiler making machinery, wire mill machinery, rumbling mills, etc. The works, covering about six acres, give employment to 550 men and the equipment is fully equal to the high character of work in which the company is engaged.

The Ford-Washburn Storelectro Company, capitalized at \$1,500,000, and now engaged in perfecting a storage battery motor, is another important Cleveland corporation engaged in a street railway enterprise of great magnitude. It is the several big car wheel and truck companies, construction companies, frog, crossing, turn-table and brake manufacturers that make up a great variety of interests in this line. Among these may be mentioned the Hill Clutch Works, Fulton Foundry Company, Dorner & Dutton, Barnes Brake Company, Bodifield Belting Company, Cleveland Frog and Crossing Company, Crossley Car Brake Company, A. G. Hathaway and the Kuhlman Company.

ELECTRIC CARBONS.

One plant now about to begin operations in Cleveland will have a capacity of one hundred and twenty million carbons annually, which at \$9 per thousand—a low estimate—will represent a value of \$1,080,000. In this branch of the electric lighting industry, apparently unimportant to the casual observer, Cleveland enjoys a great monopoly, and the best feature of the business is the great labor cost involved in the value of product. This immense works, erected by the National Carbon Company, which is another power in the electrical world, are situated at the western extremity of the city, and will, when in readiness to replace the several smaller plants now controlled by the company, give employment to about 650 hands. Alike to other electrical appliances made in Cleveland, these carbons find sale in all parts of the world. The great bulk of raw material in these carbons is refuse from the oil refineries.

LUMBER, ITS MANUFACTURE AND SALE.

Just forty firms and individuals are engaged in the sale and manufacture of lumber in Cleveland. This does not include the various wood turning works, box manufacturers, furniture manufacturers, etc. As an indication of the importance of the city as a wholesale market in this line, it is enough to say that Cleveland was third among lake ports in receipts during 1890, being surpassed only by Chicago, Ill., and Tonawanda, N. Y., two of the greatest lumber markets in the world. The pine forests of Canada, Wisconsin and Minnesota have for several years past been adding their products to that of the great state of Michigan, until now the magnitude of the lumber traffic in lake cities is a matter of great wonder to the nation. The following table showing the lumber business of all American cities on the lakes will serve to indicate Cleveland's important position as regards this immense industry:

RECEIPTS OF LUMBER AT ALL AMERICAN PORTS ON THE
GREAT LAKES, SEASON OF 1890.

(From the Bureau of Statistics, Treasury Department.)

| PORTS. | Lumber. | Shingles. | Lath. | Miscellaneous Lumber. |
|-------------------------|-----------|-----------|---------|-----------------------|
| | M. FEET. | M. | M. | M. FEET. |
| Chicago, Ill..... | 1,380,296 | 446,395 | 66,643 | 385,783 |
| Tonawanda, N. Y..... | 623,545 | 50,676 | 5,870 | 12,591 |
| Cleveland, O..... | 423,735 | 59,934 | 17,098 | 21,709 |
| Buffalo, N. Y..... | 256,713 | 34,640 | 13,820 | 15,000 |
| Toledo, O..... | 188,159 | 2,707 | 10,153 | 8,375 |
| Milwaukee, Wis..... | 186,731 | 29,936 | 7,687 | 216,192 |
| Detroit, Mich..... | 110,180 | 3,287 | 1,520 | 41,356 |
| Michigan City, Ind..... | 73,692 | 56,936 | 6,791 | 3,202 |
| Sandusky, O..... | 53,605 | 3,418 | 7,731 | 3,784 |
| Cheboygan, Mich..... | 44,606 | 2,794 | 2,565 | 17,087 |
| All other ports..... | 191,205 | 77,627 | 28,021 | 110,039 |
| Total..... | 3,541,467 | 768,350 | 167,899 | 835,118 |

The Cleveland lumber district extends along a river frontage of several miles in the immense area of lowlands called the Flats. Nature has provided facilities in this district for the lumber business. Almost on a level with the river and crossed and re-crossed by numberless railway tracks, the lumber is easily handled and can be transferred from vessels to cars with the least possible expense.

Many of the directors of the industry here are wealthy men interested in timber lands in Canada and in the states bordering on Lakes Michigan, Huron and Superior. They are also interested in the mills of the great Saginaw Valley and in lines of vessels engaged in transporting the upper lake product. Here, too, immense rafts of logs aggregating millions of feet are cut up after being towed down from Lake Huron during the favorable portion of the summer season, and altogether the industry is conducted on the broad scale demanded by the great capital involved in it.

Storage yards having a capacity for 5,000,000 to 50,000,000 feet, and equipped with dry houses and dry storage sheds for the better grades of lumber, are scattered throughout the district to which this business is confined in the city. The equipment for rapid and economical work in the handling of lumber is most complete, and in addition to the special fire apparatus maintained by the companies themselves, the city maintains a fire boat manned by a special crew, and has in contemplation the construction of a second boat of this kind. This wholesale industry is not confined alone to the sale of pine lumber. Pine is, of course, the staple article, but in hardwood and fancy lumber, foreign and domestic, this market has few superiors. Whitewood and Georgia pine are extensively dealt in, as are also the various hardwoods of New York State, much prized for finishing purposes.

But the sale of rough lumber, shingles and lath is only a part of the industry. As shown by the census returns, the manufactures in lumber, mill products from logs, lumber planed, and sash, doors and blinds during the census year were valued at \$2,219,697. Seventeen mills and factories were engaged in this work, and the capital invested was

\$2,202,115, while the number of hands employed was 980 and the wages aggregated \$544,517. Miscellaneous expenses in these works foot up for the year \$104,202 and the cost of materials used was \$1,328,739. One saw mill here has a capacity for cutting up 25,000,000 feet annually. The planing mill branch of the business is, as indicated by the census returns, fully equal to the requirements attending the sale of the large quantity of rough lumber marketed each year, and the product in sash, doors and blinds places Cleveland in the front rank as a market in these lines.

Sales of rough lumber and the leading manufactured articles extend through Ohio, Pennsylvania, New York, West Virginia, Connecticut and other eastern states.

FLOURING AND GRIST MILL PRODUCTS.

Cleveland's product in flour alone in 1891 amounted to about 675,000 barrels, valued by the trade at about \$2,600,000. One mill, that of the Cleveland Milling Company, conceded to have the largest capacity of any winter wheat mill in the world, produces 2,000 barrels a day. This mill represents an investment of about \$350,000. The only other mill of importance manufacturing flour is that of Lewis & Andrews, known as the Broadway Mills. Mr. George W. Lewis, of this firm, was president of the Board of Trade in 1888-89, and the mill, having a daily capacity of 250 barrels of flour, is one of the oldest in this section of the country. The flour trade of Cleveland extends to every state in the union, excepting a few in the north-west, and to Canada, Newfoundland, France, Belgium, Holland, England, Ireland and Scotland, the West Indies and parts of Africa. The city trade is almost wholly supplied by home mills, with the exception of the bakers, who use Minneapolis spring wheat flour to a large extent. Very little spring wheat is ground here.

The big plant of the Cleveland Milling Company, here re-

ferred to, is on the Flats and fronts on Merwin street and the river. The main building is of seven stories, and adjoining are two elevators, with a capacity of 150,000 bushels, and a power house with two engines, one of 700 and the other of 30 horse power. The warehouse storage capacity is 8,000 barrels.

The milling interests of the city are, of course, not confined to the manufacture of flour. The census returns for 1890 (one year previous to that for which the above figures were made) give the number of flour and grist mills as six, the capital \$448,582, and the value of product \$2,345,588. These returns take into account the manufacture of mill feed, in which several dealers in grain, flour and feed engage largely. One other large elevator here is that of the Union Elevator Company, which is also located on the Flats, and has a capacity of 250,000 bushels.

PRINTING AND PUBLISHING.

In the printing and publishing business, with all its varied branches and kindred interests, Cleveland is fully represented. Some of the large cities lay claim to a large volume of business in special lines, such as fancy printing, lithographing and engraving work, but here there is a diversity that includes almost every known branch of the art. Ninety-three establishments, capitalized at \$2,527,435, employing 1,789 hands, and doing a business of \$3,147,426, are the returns made by the census of 1890 for this industry. Half a dozen of the largest establishments here do a business of \$150,000 to \$300,000 a year. It will be readily understood by anyone having even a meager knowledge of the details of this industry that it is a wonderful amount of printing that will aggregate in value \$300,000, and the trade of these larger houses must and does extend to almost every state and territory in the union. In lithograph work, the

market is even larger, one house here having built up a trade for artistic color work in several foreign countries.

Beginning with the manufacture of paper, presses and type, ink, rollers and roller composition, and running through the whole line of printing and publishing, binding, lithographing and engraving, representative houses are found in every branch of production, and in addition there is a jobbing trade in books and stationery, as shown elsewhere, amounting to about \$2,000,000 annually. Music publishing is also a most important branch.

In the matter of manufacturing paper, there is very little competition locally, as there are only two Cleveland concerns. These two houses enjoy a large portion of the local trade, as well as an extensive shipping business, but they are, of course, met with active competition from outside manufacturers, all of the larger producers of the country finding a good market here. One of the Cleveland companies, having three mills, employs about 800 hands and has a capacity for twenty-five tons of paper daily. A department operated by this company for the manufacture of paper bags and flour sacks produces 550,000 of these bags and sacks daily. The manufacture of paper boxes is also very extensive, by reason principally of the large production in screws, tacks, nails and small articles of hardware. About fifteen factories of more or less importance are engaged in this line of work.

In the department of this enterprise which includes book and job printing, binding, blank book work, etc., the city of Cleveland has kept pace with the progress of the times. It is in these lines that the larger houses, all of them equipped with the latest styles of presses and labor-saving machinery, and most of them having their own binderies, do a large business through traveling representatives and by correspondence in other states, mainly Pennsylvania, Indiana, Michigan, Illinois and Kentucky. Fine catalogue work, book printing, custom work and printing for railways and other large corporations is executed by these concerns on short notice and in a most thorough manner. Their operations also include

the publication of scientific and trade journals, church and society papers, magazines and numerous other periodicals. Large binderies, independent of the principal publishing houses, finish up the work of the great number of smaller book and job printers.

Two houses in the city engaged distinctively in lithograph work are capitalized together at about \$400,000. The firm of W. J. Morgan & Co., founded in 1867, excels in color work. The product is of the very finest and it is not infrequent for fifteen or sixteen colors to be used in a single lithograph. This company has resident agents in leading European cities, and its works give employment to a force of about 100 skilled operatives, a large number of whom are artists of wide reputation. Johns & Co., the other lithograph house, also engages in high grade work, but makes a specialty of cigar box labels and trimmings, chromo cards, etc. The works of this company employ a force of sixty-five artists, pressmen and other operatives, and branch offices are maintained in New York and San Francisco.

Great advances have been made within the past few years in the various processes, by means of which photographs, paintings and pictures of all kinds are reproduced on copper and zinc blocks through the use of the camera and etching practices, and Cleveland printers and publishers have not been slow to take advantage of these methods for illustrating purposes. Two companies are doing a large business almost exclusively in photo-engraving, and in addition there are several firms and individuals making steel and wood engravings of all kinds. For book, newspaper and catalogue illustrations, there is no difficulty in securing in Cleveland a high grade of cut work of all kinds. Electrotype foundries, attached to the publishing houses in some cases and also operated as separate institutions, are numerous, and their work is fully up to the highest standard.

Although the city is not largely represented in the manufacture of printing presses and printing material, nearly everything in this line can be secured from home producers. There is one plant manufacturing job presses of improved

type with a record in sales of 3,000, a type foundry that compares favorably with other large foundries throughout the country and one works manufacturing printers' ink on a very large scale. All standard faces and a very large assortment of ornamental faces in type can be secured from Cleveland works, and the manufacturers also supply, from stocks of printing presses and materials carried in connection with their own product, complete outfits for newspaper and job offices. The product of printers' rollers, roller compositions, gum and liquid padding, glue, etc., from two or three works in the city, is also very large, and the trade in these lines far-reaching in extent.

SLAUGHTERING AND MEAT PACKING.

HOG PACKING PRODUCT IN CLEVELAND FOR FIVE YEARS.

| <i>Year Ending March 1.</i> | <i>(From Cincinnati Price Current.)</i> | <i>Number of Hogs.</i> |
|---------------------------------|---|----------------------------|
| 1891-92..... | | 303,282 |
| 1890-91..... | | 424,592 |
| 1889-90..... | | 284,176 |
| 1888-89..... | | 236,338 |
| 1887-88..... | | 250,535 |
| Total..... | | 1,498,923 |

The above figures relative to hogs alone are from a very reliable source and are enough to prove the importance of Cleveland interests in the great commercial enterprise known under the general head of slaughtering and meat packing. The census returns go further, however, covering all branches of production in the industry here. These returns show that there were in Cleveland in 1890 twenty-one slaughtering and meat packing houses, capitalized at \$810,957 and having a product for the year valued at \$8,673,966. These slaughtering and packing houses employed 474 workmen and paid \$288,673 in wages.

Cleveland has held an important position in this industry since its foundation as a city. The slaughtering and packing houses are located largely on the Cuyahoga River and Wal-

worth Run, a ravine in the outlying southern portion of the city, which has recently been sewer'd to a large extent and otherwise improved so as to provide for the disposal of refuse without danger to the health of the city. There is, of course, in connection with the slaughtering and packing industry, a very large business in the purchase and sale of cattle, both direct and through commission merchants, and the stock yards of the city are also an element of great importance in its progress. Several of the corporations and individuals dealing in live stock have close relations with all of the large exporters and execute orders in Cleveland for cattle to be shipped from points in this country direct to Liverpool.

The operations of one company here, the Cleveland Provision Company, which is among the largest concerns outside of Chicago, will prove interesting in connection with the census figures and other data relative to this industry. The capital of this company is \$1,000,000, and its establishment is on the river bank at the foot of Commercial street. It includes various buildings of three, four, five and six stories, covering a ground space of about five acres, with floor space of fully fifteen acres. The river frontage includes about 1,000 feet of dock line and railway connections extend into the works. The establishment has a capacity for 3,000 hogs and 800 head of cattle daily, and the company gives employment in all its departments, retail as well as wholesale and productive branches, to 800 workmen. The export business of this company, as well as that of several others in the city, extends to all parts of Europe.

The retail trade of the city and surrounding country is largely supplied by these local slaughtering and packing houses, but there are also here large agencies representing the big Chicago dressed beef companies, whose extensive operations recently have brought about marked changes in business methods. These agencies, having storage capacity for 100 to 200 head of dressed beef, conduct for the parent companies, which now maintain branches in nearly all leading cities of the country, a business with retailers throughout Northern Ohio, and also operate large retail stores here.

WOOL SHODDIES AND BLANKETS.

The aggregate annual value of Cleveland's product from three mills operating in these lines is \$2,225,000 at a low estimate. The product in wool shoddies alone aggregates 6,600,000 pounds annually, the capital invested aggregates \$750,000 and about 1,050 operatives are employed. These figures prove what is already conceded by everybody acquainted with the industry that the Cleveland mills are the greatest in the world. The product includes wool shoddies, botany yarns, wool noils and rings and threads in all colors. About 90 per cent. of the manufactures goes to Eastern mills, 50 per cent. of it along the line of the New York Central Railway to mills making knitwear and underwear. The remaining 50 per cent. of the product credited to domestic consumption is made into cloth, 40 per cent. of this finding a market in the East and 10 per cent. in the West and South. The manufacturers also have representatives in Paris, Strasburg and London. The greater portion of the raw material is thread waste and cuttings of new cloth from clothing factories, only about one-third being rags, and these are carefully selected from certain sections of the country.

The firms engaged in the shoddy business are F. Muhlhauser & Co. and Collings, Taylor & Co. The mills of the former company are very much the larger of the two and are located on Pleasant street, the premises covering about an acre of ground. In the several buildings there are three washing machines, twenty dye tubs, four dusting machines, three dyeing machines, twenty-six carding machines and ten picking machines. The works of Collings, Taylor & Co., known as the Cleveland Woolen Mills, are located on the line of the Cleveland & Pittsburg Railway, between Cedar and Central avenues. The equipment here also includes carding, picking, dusting, dyeing machines, dye vats, etc.

The blanket works, known as the Northern Ohio Blanket Mills, are owned and operated by Beckman & Co., and are also located on Pleasant street. These works, employing a

force of 250 hands, do a business of fully \$500,000 a year in bedblankets, horseblankets and carriage robes. The product is sold to the trade throughout the United States and in Canada, Mexico, South America and Alaska.

The Joseph Turner & Sons Manufacturing Company, with works at 1742 to 1796 Broadway, do a large business in worsteds.

VARIOUS KINDS OF WEARING APPAREL.

The product of Cleveland manufacturers of cloaks, which includes various kinds of garments, is fully \$2,250,000 annually. This is the leading manufacturing line coming under the general head of clothing, in which the census returns twenty-four establishments, capitalized at \$1,618,178, employing 1,833 hands, paying \$868,179 in wages, and having a product valued in the aggregate at \$3,972,392. Outside of cloaks, the manufacture of clothing is not as large as in some eastern cities, but it must not be inferred from this that there is not a very important jobbing trade here. As shown elsewhere in a review of a few leading mercantile lines, the jobbing trade in dry goods foots up about \$9,000,000 a year, and there is a trade in ready-made clothing of fully \$2,000,000 annually.

The manufacture of cloaks is divided among several large houses, and competition is very close. Cleveland ranks about third among cities of the country in this line, and the market covers a very wide territory, trade in the northwest being especially extensive. In the manufacture of hats and caps, there are six large houses, and the hosiery and knit goods industry is represented by two houses. Such articles as men's, boys' and children's pantaloons and vests, overalls, shirts and jumpers, and boys' shirt waists and blouses, are all produced for the ready-made clothing trade. Houses operating in these lines are not among the largest in the country, but they are equipped with steam and electrical power for sew-

ing and cutting machines, and are otherwise conducted in a most thorough manner. There are also in Cleveland manufacturers of a number of specialties connected with the clothing trade, such as military and society uniforms, velveteen dress facings, dress, cloak and cap trimmings, cloak cords, chenille ornaments, tassels, etc.

TANNERS AND CARRIERS, BOOT AND SHOE MANUFACTURERS.

Reference made among mercantile lines on another page to the jobbing trade in boots and shoes shows that in this respect the large houses in Cleveland are among the most progressive in the country, and are doing a business annually of no less than \$2,800,000, including rubber goods. The manufacturing interests, which were a few years ago confined to the East, are also drifting to other sections of the country, and in Cleveland at present \$830,000 is a conservative estimate of the value of the annual product of manufacturers. The review of the jobbing trade refers to the markets in which wholesale dealers find sale for this product, as well as the large purchases made from factories elsewhere.

There are eight factories engaged in the manufacture of boots and shoes in Cleveland, three of which are operated on a very large scale. One of these latter, manufacturing fine and medium grades of ladies', misses' and children's shoes, has a productive capacity of 1,000 pairs of shoes a day. In all of these factories the latest designs of improved machinery are used, and the progress of late in the productive portion of the industry has been fully equal to the growth in sales made by the wholesale dealers.

Five tanneries of moderate proportions are engaged in the production of leather, and Cleveland is a recognized headquarters for harness leather. The trade in hides, pelts, skins, etc., is also very large.

PETROLEUM PRODUCTS.

On account of the immense operations of the Standard Oil Company in all parts of the world, and as a result of changes that have occurred in the oil industry through the discovery of new fields and an extension of the market for petroleum products, the impression has gone abroad that Cleveland, the home of the Standard Company, is no longer an important center in this regard. It is true that the interests of this company in New York and other places, notably Whiting, Ind., where their works, built up recently, are the largest of the kind in the world, have increased on a scale far greater than the progress shown in Cleveland, but it is also true that this big corporation still retains refineries here, and the conduct of its business is largely managed by Cleveland officers. The vice-president of the company, Mr. Frank Rockefeller; the treasurer, Mr. L. H. Severance; and the secretary, Mr. F. B. Squire, all of whom are actively engaged, are located at the Cleveland headquarters of the company, Nos. 45 to 53 Euclid avenue. The works on Broadway, near the N. Y., P. & O. R. R., Tod street, near the same railway, and Kinsman street, on the Cleveland & Pittsburg railway, cover many acres of ground, and the output of the company here includes every form of the products of petroleum for illuminating, lubricating and manufacturing purposes. Unfortunately, the officers of the company will give no detail regarding these works further than saying that the interests here represent an actual capital of \$3,500,000, but the magnitude of the institution and its relations to Cleveland are too well understood to admit of comment at great length.

Of eighty firms and individuals carrying on a business in all branches of the oil industry, independent of the Standard Oil Company, ten operate large refineries in different parts of the city. These ten independent concerns are Scofield, Shurmer & Teagle, Cleveland Refining Company, National Refining Company, Globe Oil Company, Excelsior Refining

Company, Eagle Refining Company, Brooks Oil Company, Meriam & Morgan Paraffine Company, Canfield Oil Company, and Case, Nutt & Company. The capital invested in works owned by the independent companies is about \$2,500,000, and the value of their annual product about \$4,000,000. The output of these works includes illuminating oil of different tests, according to the requirements of the various States; lubricating oil, from the finest grades of cylinder to that of ordinary quality for engine and machinery purposes; gasoline, for gas stoves and machine purposes; naphtha, for paint and mixing purposes; paraffine and numerous other articles made from the tar and known as products of petroleum.

The Eagle Refining Company also operates a large works at Lima, O. The Peerless Refining Company, which has its headquarters here, is not included in the above list, although its interests in the Ohio field and works at Findlay, O., are very large. This company, operating the largest pipe line in the State outside of the Standard, has its own production, storage, pipe line, refinery and tank cars.

PAINTS.

Connected with the manufacture of paint in Cleveland, and of almost equal importance, are the great varnish and linseed oil works. But irrespective of the varnish works and other kindred interests, there are sixteen concerns manufacturing paint, and one of them is the largest in the world. Machinery-made paint is fast displacing hand mixed preparations, and with each year there is a wonderful increase in the volume of business done by these factories. The census figures show that in the manufacture of paints alone these factories, capitalized at \$1,664,003, employed 365 hands, paid \$243,830 in wages and produced goods to the value of \$2,008,986. Cleveland paints are shipped by ton and car load not only to all parts of the United States, but a considerable export trade is carried on. The product in-

cludes prepared paints of various brands, having a national reputation, family paints put up in small cans, first quality oil colors, quick drying coach colors, metallic paints, liquid creosote paints, ochres, Venetian red, etc. The method of putting up paints in small cans for use by the inexperienced originated in Cleveland.

Among half a score of manufacturers of varnish in the city, three operate large plants, capitalized at \$100,000 to \$200,000 each. The product includes fine grades of carriage, piano and house finishing varnishes, made after the most improved processes.

The Cleveland Linseed Oil Works are among the largest, works of their kind in the United States. Their product is a pure article of linseed oil, raw and boiled, refined and bleached, and the trade extends to all parts of the country, with an extensive business in exports of linseed meal. Mr. J. W. Evans, of this company, an expert in the business, has invented a new process for the manufacture of oil by the solvent system, instead of the old way by pressure. Oil of an improved quality is claimed for this method, and it is also claimed that there is a saving of $2\frac{1}{2}$ pounds to the bushel.

DRUGS AND CHEMICALS.

A general chemical manufacturing business is carried on by five concerns in Cleveland, and two wholesale drug houses, having a very large jobbing trade, are also manufacturers of drugs. Several analytical chemists and metallurgists conducting laboratories for work of a general nature also find a great demand for their service, largely from the shippers and consumers of iron ore. The several large chemical works, founded here on account of the iron and oil industries, are, of course, most important among the ten productive establishments, from which the census office makes returns under the head of drugs and chemicals. These

ten establishments, according to the census, are capitalized at \$1,366,368, employ 304 hands, and produced in 1890 goods to the value of \$944,737.

Among the products in chemicals are sulphuric acids, muriatic acids, nitric acids, mixed acids, aqua ammonia, refined glycerine, blue vitriol, sal-soda and sulphate of soda. The uses of these chemicals are as varied as they are important, and it would be almost impossible to enumerate them. Sulphuric acid, for instance, is employed in the manufacture of bleaching powders, of imitation parchment and of nitro-glycerine; is used in etching iron, in removal of iron scale from forgings, in petroleum refining, etc., and in general its manufacture is the most important of all chemicals. Nearly all the works, while doing a general business, give attention to some particular article or line, and by making it a feature have gained a very wide reputation and an extensive trade. In this industry is also included the manufacture of carbolic acid gas, oxygen and hydrogen, coal tar, cements for roofing, etc.

The two houses engaged in the manufacture of drugs, Benton, Myers & Co., and Strong, Cobb & Co., are among the oldest business concerns in Cleveland. Highly skilled workmen are employed in laboratories connected with their large stores for the sale of drugs and drug sundries. There are also several houses compounding patent medicines on a moderate scale.

LAKE FISHERIES.

Only recently has any definite knowledge of the importance of lake fisheries been secured. The companies engaged in the business are themselves at work now in preparing statistics for use in the legislatures of the different States. In Cleveland, the capital invested in nets, tackle, steam vessels and other equipments, exclusive of storage houses, is about \$200,000, and the aggregate annual product for three or four

seasons past has ranged from \$250,000 to \$300,000. There are engaged in the service of dealers here sixteen steam vessels of harbor tug size, four steam scows, fifty trap nets and 3,000 gill nets. Of the entire product, herring is one-half, pike one-quarter, and white fish and other high-priced varieties one-quarter. Cleveland ranks first among lake cities in the spring product and also in its general product during the season, although Sandusky catches most herring and Buffalo most of the large varieties. Large quantities of this fish are frozen and salted for sale throughout the year, and the market extends as far east as the Hudson river and New York City, as far south as Tennessee, and as far west as the Mississippi river. Cleveland dealers make a specialty of fresh fish, although the salt fish goes farther than that of any port on the lakes.

VIII.—MERCANTILE.

AGGREGATE ANNUAL SALES BY JOBBING HOUSES IN A FEW
 LEADING MERCANTILE LINES—MERCHANT IRON AND
 STEEL—HARDWARE—DRUGS AND CHEMICALS—
 DRY GOODS—GROCERIES—PRODUCE—CLOTH-
 ING—BOOKS—FURNITURE—ETC.

| | |
|--|---------------------|
| Dry Goods..... | \$9,000,000.00 |
| Groceries | 9,000,000.00 |
| Produce, through commission merchants..... | 4,750,000.00 |
| Hardware | 4,000,000.00 |
| Merchant Iron and Steel out of store..... | 3,250,000.00 |
| Boots, Shoes and Rubbers..... | 2,800,000.00 |
| Rubber Goods, Belting, Hose, Rubber Garments, etc..... | 2,300,000.00 |
| Cloaks (from manufacturers)..... | 2,250,000.00 |
| Clothing, made up..... | 2,000,000.00 |
| Millinery and Straw Goods..... | 2,000,000.00 |
| Books and Stationery..... | 2,000,000.00 |
| Drugs and Druggists' Sundries..... | 2,000,000.00 |
| Teas, Coffee and Spices (exclusive of sales by wholesale grocers in these lines)..... | 1,900,000.00 |
| Crockery | 900,000.00 |
| Furniture..... | 500,000.00 |
| Toys and Notions..... | 350,000.00 |
| Total..... | \$49,000,000.00 |

The above figures, resulting from interviews with the heads of different houses in leading lines of trade, show the importance of the city as a mercantile center. They are estimates, of course, but they are conservative in every case, and they are derived from the best possible source, the merchants themselves, who are most capable of making totals regarding their own business and that of their competitors. One of

the most encouraging features of the work attending the collection of statistics from Cleveland merchants is the absence of jealousy among them. Instead of fearing loss through increased competition, these heads of jobbing houses urgently advocate the use of any methods, on the part of the Board of Trade, or other commercial bodies, that will tend to increase the number of wholesale dealers in their own as well as other lines. With each year's increase in the volume and variety of the jobbing trade they note the arrival of new customers, mostly those who have been known to visit New York and other eastern cities one or more times a year for the purpose of making purchases. This is the secret of the desire for more wholesale houses and a greater variety of them, to meet the requirements of proprietors of general stores in small towns, as well as the demands of cities in the Central West, where Cleveland jobbers have already established a strong foothold, by carrying stocks in some lines fully equal to those carried by similar firms in any of the leading cities of the country.

Without stopping to review any part of the history of firms now engaged in mercantile pursuits here, the different lines of trade embraced in the foregoing table will be briefly discussed in the following paragraphs.

MERCHANT IRON AND STEEL OUT OF STORE.

This is a branch of the iron industry entirely separate from manufactures. Boston, Philadelphia and New York firms maintain large warehouses and carry on a business about equal to that of Cleveland in merchant iron out of store, but it is remarkable that in Pittsburg and other centers of manufacture the trade in this way is not large. Three firms in Cleveland, Bassett, Presley & Train, Condit, Fuller & Co. and Cleveland, Brown & Co., all have big warehouses and do a business amounting in the aggregate to about \$3,250,000 annually. Their trade extends as far west as Iowa and south

to Tennessee, with more valuable territory nearer home in Ohio, western New York, Pennsylvania and Indiana, and the principal lines which they carry in stock at all times are iron and steel bars, hoops, bands, sheets, plates, nails and spikes, boiler tubes, boiler rivets, tank and sheet iron rivets, Norway bars and shapes, beams and channels and angle and T iron.

HARDWARE.

Five wholesale hardware houses in Cleveland carry as fine an assortment of goods as can be found in the United States. The estimate of annual sales, \$4,000,000, is certainly a conservative one, as four of the Cleveland jobbing houses are recognized as leaders among dealers in this line throughout the country, and there is practically no limit to the extent of territory which they cover. A force of twenty to forty traveling salesmen is maintained by each house, and some of their catalogues, issued in thousands, contain as many as 1,500 pages of unusual size. As supplies are secured largely from the great hardware manufacturing plants located in the city, it is only natural, of course, that Cleveland should hold such an important position in this regard.

GROCERIES—TEAS, COFFEES AND SPICES.

In northern and central Ohio, western Pennsylvania and eastern Indiana, as well as Michigan and other parts of the upper lake country, the wholesale grocers of Cleveland have built up and maintained through all the years since the first trading post was established on the Western Reserve, a control of the business in staple and fancy groceries, while in special lines sales extend over even more distant territory. The trade, put down at \$9,000,000 annually, is now repre-

sented by nine firms, and for a show of solidity, financial strength and business ability, they are hardly equaled in any other city. It is a remarkable fact that there has not been a failure in the wholesale grocery trade of Cleveland for more than a quarter of a century.

Aside from the trade carried on by all wholesale grocers in teas, coffee and spices, two houses dealing exclusively in these lines do an annual business of nearly \$2,000,000, with a capital of \$500,000 invested in the preparation and manufacture of the same.

PRODUCE COMMISSION MERCHANTS.

Forty-two firms and individuals, maintaining warehouses, cold storage apartments, horses and trucks and other equipment, are engaged in the sale and shipment of produce of all kinds. Annual sales of these concerns are estimated in the aggregate at \$4,750,000, and this does not take into account the business of commission brokers and others who do not conduct stores for the sale of these farm products. The great bulk of this trade is in butter, eggs, cheese, potatoes, onions and apples, and large quantities of domestic and tropical fruits during the different seasons. Much of the business is in car load lots, and sales are made largely on track for local consumption as well as for shipment to other markets. Great quantities of the staple articles are also put into storage houses for sale throughout the year, and the trade is generally conducted on the broad scale demanded by the important farming districts tributary to the city. The Western Reserve produces as much butter, eggs, cheese and poultry as any other like area of country. In fact, the location of the city as the center of a belt of country remarkable for its fertility makes Cleveland a most available market for receiving and distributing produce of all kinds, and the farms, dairies and orchards of Pennsylvania, Ohio and Michigan are largely represented in connection with the product of the immediate country.

DRY GOODS.

A very conservative estimate of the annual jobbing business in dry goods in Cleveland is \$9,000,000. This trade is limited to two houses, Root & McBride Bros., who do only a jobbing business, and William Taylor, Son & Co., who also conduct a retail business. The jobbing trade reaches all parts of Ohio, Michigan, eastern Illinois, northern Indiana, western Pennsylvania, western New York, part of West Virginia and isolated towns in the West. The stock carried by both houses includes a much wider range of goods than is carried by large eastern concerns, as the local jobbers must supply nearly all goods demanded by general country stores. These houses are represented in European markets by experienced buyers, and their stocks, carefully selected, represent the best foreign and domestic manufacturers in suits, satins, velvets, dress fabrics, white goods, linens, domestic cottons, laces, ribbons, embroideries, shawls, wraps, etc., with furnishing and upholstery goods, blankets, flannels, hosiery, gloves, underwear, carpets, notions, fancy goods, etc. The heads of these two prosperous firms are very earnest in advocating the establishment of other dry goods houses here, as retailers prefer to buy in cities within ready reach of their homes when the market is extensive enough to warrant their doing so.

MADE-UP CLOTHING—OTHER WEARING APPAREL.

As shown in the department of this work devoted to productive industries, the manufacture and sale of ladies' cloaks reaches about \$2,250,000 annually, but in other articles coming under the general head of clothing, such as wearing apparel for men and boys, the jobbing trade is not what it should be. The manufacture and sale of overalls, shirts and

caps is quite extensive, but \$2,000,000 is a liberal estimate of the jobbing trade in men's and boys' clothing. In this line also the dealers court competition, a lack of which seems to be the only obstacle in the way of placing their business on a level with the importance of other kindred establishments.

MILLINERY AND STRAW GOODS.

Cleveland ranks next to New York and Chicago as a millinery market and lays claim to the largest house in the United States engaged exclusively in the sale of millinery and straw goods. Many of the lines sold by four wholesale concerns here, doing a business of fully \$2,000,000 annually, are of their own importation, and sales extend into Tennessee, Kansas and Texas. Stocks include all grades of straw and felt goods, flowers, feathers, ostrich goods, ribbons, silks, velvets, ornaments, laces and a complete line of the latest novelties.

BOOKS AND STATIONERY.

In addition to quite a large business carried on by agencies and publishing houses in the sale of blank books and religious and society publications, Cleveland has one house conducting a trade in books and stationery that is the largest west of Philadelphia, excepting one each in St. Louis and Chicago. The entire trade amounts to about \$2,000,000 a year and is distributed over a very large territory.

DRUGS AND DRUGGISTS' SUNDRIES.

The capital invested in the manufacture of drugs and the sale of drugs and druggists' sundries, which are combined in two houses in Cleveland, Strong, Cobb & Co., and Benton, Myers & Co., is about \$600,000, and the sales reach at least \$2,000,000 annually. The houses are larger and the sales extend over greater territory than those of any other city of the same size. The cities and towns of about twenty States are reached by these two firms, but the greater portion of the trade is confined to Ohio, Indiana, Michigan, western Pennsylvania, western New York, northern Kentucky, West Virginia, Wisconsin and Minnesota.

BOOTS AND SHOES.

Cleveland's wholesale establishments engaged in the sale of boots and shoes are managed by the most progressive and enterprising business men of the city. In this line, which includes seven manufacturers, whose product is referred to elsewhere, the jobbers do not stop with the limited markets of Ohio, but enjoy a very large share of the business of Pennsylvania, western New York, West Virginia, northern Kentucky, Indiana, Illinois, Michigan, Wisconsin and Minnesota, and two houses send traveling representatives across the Mississippi into Missouri, Iowa and Nebraska. Of a total business of fully \$2,800,000 annually, about \$900,000 is in rubber goods. Eastern cities no longer hold a monopoly of any part of the boot and shoe business, and the merchants here who have wrested from New York, Boston and other places a very large portion of the western and north-western trade say they can see no good reason why dealers in other lines can not do likewise. New York retains the southern trade in boots and shoes, but there is not now any one center

of great importance, since the business has been divided among dealers in Cleveland, Chicago, St. Louis and other cities. Besides all styles and grades of boots and shoes in leather, these houses carry complete lines of footwear in rubber goods.

MECHANICAL RUBBER GOODS AND GARMENTS.

In the sale as well as the manufacture of such rubber goods as belting, hose, sheet, combination and other packing, rubber covered rolls, wringer rolls, blankets, horse covers, garments, etc., Cleveland ranks next to New York City, with aggregate annual sales of more than \$2,000,000. This trade is entirely exclusive of boots and shoes. There are four jobbing houses getting supplies mainly from the works here, the product of which also includes printers' blankets, tubing, fruit jar rings and all rubber goods for mechanical purposes, as well as couplings and supplies connected with the use of these goods, and a large line of druggists' sundries of a superior quality. These houses sell goods in all parts of the United States.

CROCKERY AND GLASSWARE.

Within a few years the wholesale trade of Cleveland in these lines has assumed large proportions, and three establishments, now recognized as leaders among the numerous retailers, conduct also a jobbing trade throughout the territory covered by most other wholesale houses in the city. This jobbing business amounts to about \$900,000 annually, and is increasing rapidly. The branches in which the city excels are lamps and imported China goods.

IX.—FINANCIAL.

BRIEF FINANCIAL HISTORY OF CLEVELAND—STRENGTH OF OUR FINANCIAL INSTITUTIONS IN THE PAST—SUMMARY OF STATEMENTS OF CLEVELAND'S BANKS, BUILDING AND LOAN COMPANIES, ETC.—LIBERAL POLICY OF CLEVELAND'S BANKS TOWARDS MERCHANTS AND MANUFACTURERS.

| BANKING INSTITUTIONS. | NUMBER. | PAID IN CAPITAL, ON JULY 1, 1892. | SURPLUS, JULY 1, 1892. |
|------------------------------------|---------|-----------------------------------|------------------------|
| National banks..... | 11 | \$9,050,000 | \$2,233,587 |
| Savings banks..... | 21 | *3,432,100 | 3,473,590 |
| State Banking Companies..... | 2 | 550,000 | 37,165 |
| Savings and Loan Associations..... | 16 | 2,350,002 | 15,941 |
| Total..... | 50 | \$15,382,102 | \$5,760,283 |

*Not including Society for Savings, having deposits amounting to \$21,539,844.

In the above statement is shown the actual investment of capital in banking business in Cleveland, made up in all cases from official returns to the controller of the currency, United States Treasury Department, and to the state officers, who direct the affairs of savings banks, state banking companies and building and loan associations. Accompanying tables giving summaries of the latest published statements from these institutions, are also prepared from the same reliable reports.

These tables show, that irrespective of building and loan associations, the deposits in Cleveland banks on April 1, 1892, aggregated \$63,381,381, divided as follows: National banks, \$21,777,500; savings banks, \$40,508,052; state banking companies, \$1,095,829. Loans and discounts aggregated \$47,762,762 and were divided as follows: National banks, \$20,208,113; savings banks, \$26,290,895; state banking companies, \$1,263,754.

Notwithstanding the clean history of Cleveland's banking business under state and national laws for full three-quarters of a century past—its freedom from failures or serious disturbances of any kind—there is abundant evidence of the liberal policy of the directors of these institutions in the substantial growth of manufacturing and commercial interests. No speculative influences go to swell the volume of banking business; neither do transactions of a speculative nature figure in Cleveland's statements of weekly bank clearings, as published throughout the country in comparison with the clearing house statements from other cities.

BUILDING AND LOAN ASSOCIATIONS.

There has been in the past but little reliable information concerning the capital invested in these co-operative associations in the city, but in May, 1891, the state legislature made a law requiring verified annual reports, bonded officers, designated depositories for funds and accumulation of reserves, and providing for state inspection. Reports made public through the passage of this act present figures surprisingly large. There are sixteen of these associations in Cleveland, having a combined paid-in capital of \$2,350,002, according to statements of date about July 1, 1892, in nearly all cases. Full statements of assets and liabilities from twelve of these organizations appear elsewhere. Four companies not making reports are the South Side German Building Association, Home Building and Loan Associa-

tion, Western Reserve Savings, Building and Loan Company, and Forest City Building and Loan Company, none of which had been in business a full year on July 1, 1892. They had a combined paid-in capital of \$66,000, which added to the total capital of \$2,284,002, shown in the statements, makes a grand total of \$2,350,002.

A conservative estimate places the number of these associations in the state at 800, with a membership of 230,000, representing over \$50,000,000 assets. Mr. Herman F. Celarius, to whom the Board is indebted for some of the statements from Cleveland associations, is in charge of the State Bureau of Building and Loan Associations at Columbus. Work of the bureau was gotten fairly under way only recently, and for this reason statistics comparing the business in Cleveland with other leading cities are not as yet available.

BRIEF HISTORY—FINANCIAL STRENGTH OF THE CITY IN THE PAST.

In the history of banking business for more than seventy years, there is probably not another city in the United States as free from bank failures as Cleveland. Especially is this true since the inauguration of the national laws under which the financial institutions of the city have grown and prospered. During forty years past only one banking house, the old Canal Bank, has closed its business without paying liabilities in full. History shows that Cleveland's first bank president, Alfred Kelley, was the originator and champion of the Ohio system, which later received the sanction of the United States government and became the greatest and most successful banking scheme the world has ever seen.

In 1816, the Commercial Bank of Lake Erie was incorporated, with the following leading men as its projectors: Alfred Kelley, president; Leonard Case, cashier; John H. Strong, Samuel Williamson, Philo Taylor, George Wallace, David Long, Erastus Miles and Seth Doan, incorporators. After a

short run, this bank closed up its business in a manner entirely satisfactory to its creditors, the directors finding that their venture was somewhat premature. Twelve years later, in 1832, the concern was reorganized on a sound basis, with the following officers: Leonard Case, president; Truman P. Handy, cashier; Leonard Case, Truman P. Handy, Samuel Williamson, Edward Clark, Peter M. Weddell, Herman Oviatt, Charles M. Giddings, John Blair, Alfred Kelley, David King, James Duncan, Roswell Kent and John W. Allen, directors. The capital of this bank was \$500,000. In 1842 its charter expired and the legislature refused to extend it. Its affairs were wound up by application to the courts, a board of receivers appointed, all its debts and outstanding liabilities paid up in full and the remainder turned over to the shareholders. About this time Alfred Kelley was elected state senator and he framed and secured the passage of a bill for the creation of the State Bank of Ohio as well as other banking companies. The system enforced in this bill was the direct parent of the national banking law of the United States. Salmon P. Chase, who was thoroughly acquainted with the Ohio system and conversant with the workings and success of concerns operated under the Kelley law, founded the system of national banks upon this law, and the independent banking system which was passed a few years later.

CONDITION OF ALL NATIONAL BANKS, SAVINGS BANKS AND
STATE BANKING COMPANIES IN CLEVELAND ON
THE FIRST MONDAY IN APRIL, 1892.

| NATIONAL BANKS. | Capital. | Surplus and Profits. | Loans and Discounts. | Deposits. |
|---|--------------|----------------------|----------------------|--------------|
| Central National..... | \$ 800,000 | \$ 76,393 | \$1,884,726 | \$1,536,568 |
| Cleveland National..... | 500,000 | 108,332 | 1,273,223 | 1,073,101 |
| Commercial National..... | 1,500,000 | 509,387 | 8,387,757 | 3,298,461 |
| Euclid Avenue National..... | 600,000 | 150,264 | 2,896,626 | 3,092,728 |
| First National..... | 500,000 | 137,103 | 1,325,572 | 1,546,169 |
| Mercantile National..... | 1,000,000 | 291,367 | 2,280,827 | 2,515,272 |
| National Bank of Commerce..... | 1,500,000 | 387,411 | 2,210,336 | 3,485,897 |
| National City Bank..... | 250,000 | 272,220 | 937,812 | 855,066 |
| State National..... | 500,000 | 119,384 | 1,906,220 | 1,950,669 |
| Union National..... | 1,000,000 | 181,726 | 2,105,014 | 2,423,469 |
| Western Reserve National (a)..... | 1,000,000 | | | |
| Total..... | \$9,050,000 | \$2,233,587 | \$20,208,113 | \$21,777,500 |
| SAVINGS BANKS. | | | | |
| Arcade Savings Bank Co..... | 50,000 | 2,798 | 127,670 | 106,364 |
| Broadway Savings and Loan Co..... | 200,000 | 73,609 | 1,404,064 | 1,447,862 |
| Citizens' Savings and Loan Association..... | 1,000,000 | 997,423 | 4,732,932 | 5,701,708 |
| Columbia Savings and Loan Co..... | 50,000 | 1,593 | 138,717 | 144,805 |
| Dime Savings and Banking Co..... | 150,000 | 29,049 | 915,194 | 940,208 |
| East End Savings Bank Co..... | 187,100 | 51,845 | 738,013 | 1,008,433 |
| Forest City Savings Bank Co..... | 55,000 | 11,052 | 320,762 | 355,411 |
| Garfield Savings Bank Co. (a)..... | 50,000 | | | |
| German-American Savings Bank Co..... | 100,000 | 17,489 | 418,472 | 363,021 |
| Lorain Street Savings Bank Co..... | 50,000 | 2,500 | 257,609 | 243,732 |
| Merchants' Banking & Storage Co..... | 150,000 | 8,110 | 143,614 | 102,636 |
| Mechanics' Savings Bank Co..... | 50,000 | 5,451 | 120,829 | 113,990 |
| People's Savings and Loan Association..... | 100,000 | 156,915 | 1,075,634 | 1,499,689 |
| Pearl Street Savings and Loan Co..... | 50,000 | 5,622 | 278,556 | 321,423 |
| Produce Exchange Banking Co..... | 100,000 | 12,099 | 317,193 | 453,366 |
| Society for Savings (b)..... | | 1,901,980 | 9,382,847 | 21,539,844 |
| South Cleveland Banking Co..... | 150,000 | 23,032 | 693,292 | 685,267 |
| Savings and Trust Co..... | 690,000 | 76,616 | 3,088,442 | 8,149,992 |
| Woodland Avenue Savings and Loan Co..... | 150,000 | 68,303 | 1,284,524 | 1,322,876 |
| Wade Park Banking Co..... | 100,000 | 6,026 | 354,600 | 330,417 |
| West Side Banking Co..... | 50,000 | 22,083 | 577,981 | 676,408 |
| Total..... | \$3,482,100 | \$3,473,590 | \$26,290,895 | \$40,508,052 |
| BANKING COMPANIES. | | | | |
| Marine Bank Co..... | 300,000 | 21,505 | 826,273 | 687,928 |
| The Wick Banking and Trust Co..... | 250,000 | 15,660 | 437,481 | 408,601 |
| Total..... | \$550,000 | \$37,165 | \$1,263,754 | \$1,095,829 |
| Grand Total..... | \$13,062,000 | \$5,744,342 | \$47,762,762 | \$63,381,381 |

a—Recently organized.

b—Operated under a special charter.

CLEARINGS OF ASSOCIATED BANKS IN CLEVELAND BY MONTHS FOR FIVE YEARS PAST.

| MONTHS. | 891. | 1890. | 1889. | 1888. | 1887. |
|----------------|---------------|---------------|---------------|---------------|---------------|
| January..... | \$22,040,572 | \$21,541,613 | \$15,841,893 | \$13,164,393 | \$13,522,355 |
| February | 18,895,309 | 16,280,562 | 13,022,106 | 11,694,132 | 12,514,862 |
| March..... | 19,827,126 | 18,297,829 | 15,218,526 | 12,309,028 | 12,890,719 |
| April..... | 20,796,365 | 20,440,869 | 14,099,078 | 12,498,118 | 13,279,366 |
| May..... | 19,283,717 | 21,570,823 | 15,313,992 | 13,215,846 | 13,397,821 |
| June..... | 21,305,189 | 21,096,577 | 15,971,187 | 13,572,799 | 14,466,939 |
| July..... | 23,932,375 | 25,125,428 | 17,196,859 | 14,009,733 | 13,193,742 |
| August..... | 21,176,343 | 21,987,702 | 16,957,732 | 13,597,441 | 13,419,294 |
| September..... | 24,063,833 | 24,925,987 | 16,618,037 | 13,741,261 | 13,730,524 |
| October..... | 24,370,375 | 26,385,557 | 19,880,694 | 16,042,033 | 14,340,059 |
| November..... | 23,916,943 | 22,777,698 | 18,967,909 | 14,924,559 | 14,163,252 |
| December..... | 25,392,275 | 24,039,888 | 20,183,208 | 15,564,345 | 14,124,842 |
| | \$264,000,372 | \$264,470,453 | \$198,272,121 | \$164,335,988 | \$163,043,775 |

ASSETS OF TWELVE BUILDING AND LOAN ASSOCIATIONS IN CLEVELAND—STATEMENTS OF ABOUT JULY 1, 1892.

| | Cash. | Loans on Mortgage Security. | Loans on Stock or other Security. | Furniture and Fixtures. | Miscellaneous. | Total Assets. |
|---|--------------|-----------------------------|-----------------------------------|-------------------------|----------------|----------------|
| Cleveland Permanent Building & Loan Co..... | \$49,333.72 | \$1,061,126.42 | \$48,945.45 | \$1,150.00 | \$470.75 | \$1,161,081.34 |
| Savings, Building & Loan Co..... | 6,513.53 | 288,544.22 | 17,039.93 | 1,268.25 | 1,484.69 | 314,850.82 |
| Union Building & Loan Co..... | 12,686.47 | 255,938.39 | 11,467.00 | 1,047.71 | ..... | 281,139.57 |
| Mutual Building & Investment Co..... | 5,462.88 | 220,585.00 | ..... | 86.45 | ..... | 226,734.33 |
| Ohio National Building & Loan Co..... | 30,078.36 | 145,842.00 | ..... | 289.24 | ..... | 176,209.60 |
| First Hungarian Building & Loan Association Co..... | 710.46 | 125,625.00 | 2,885.00 | ..... | ..... | 129,220.46 |
| Ohio Savings, Loan & Building Co..... | 7,276.24 | 166,213.94 | ..... | 2,693.53 | 88.95 | 176,272.66 |
| Brooklyn Building & Loan Association Co..... | ..... | 102,600.00 | ..... | 463.60 | 888.82 | 103,952.42 |
| Brooklyn Saving & Loan Co..... | 24,051.11 | 80,341.02 | 35,875.81 | 848.64 | ..... | 141,116.58 |
| Cleveland & West Side Building Verein..... | 999.52 | 75,300.00 | 250.00 | 100.00 | ..... | 76,649.52 |
| Industrial Building & Loan Association..... | 147.43 | 21,600.00 | ..... | 73.07 | ..... | 21,820.50 |
| Employees' Savings, Loan & Building Co..... | 548.99 | 291.67 | ..... | 36.50 | ..... | 877.16 |
| | \$137,813.71 | \$2,544,007.66 | \$116,463.19 | \$8,656.99 | \$2,933.41 | \$2,809,874.96 |

**LIABILITIES OF TWELVE BUILDING AND LOAN ASSOCIATIONS
IN CLEVELAND—STATEMENTS OF ABOUT JULY 1, 1892.**

| | Capital Stock Paid in. | Deposits and Interest. | Building Loan Deposits Unexpen'd. | Reserve Fund. | Undivided Profits and other Liabilities. | Total Liabilities. |
|--|------------------------|------------------------|-----------------------------------|--------------------|--|-----------------------|
| Cleveland Permanent Building & Loan Co. | \$855,109.62 | \$205,872.18 | \$52,545.66 | \$37,215. | \$10,237.89 | \$1,161.134 |
| Savings, Building & Loan Co. | 278,129.12 | 24,588.82 | 6,978.03 | 9,275.37 | 879.48 | 314.8 .82 |
| Union Building & Loan Co. | 243,890.06 | 8,408.15 | 28,031.05 | 310. | 500.00 | 281,139.57 |
| Mutual Building & Investment Co. | 207,561.65 | 10,000.00 | 8,528.61 | 84.07 | 560.00 | 226,734.33 |
| Ohio National Building & Loan Co. | 165,571.40 | ..... | 6,378.15 | 4,260.06 | ..... | 176,209.60 |
| First Hungarian Building & Loan Association Co. | 127,712.54 | ..... | ..... | 1,507.92 | ..... | 129,220.46 |
| Ohio Savings, Loan & Building Co. | 125,690.45 | 43,931.42 | ..... | 5,104.74 | 1,546.05 | 176,272.66 |
| Brooklyn Building & Loan Association Co. | 100,049.62 | 250.00 | 2,142.96 | 651.68 | 858.16 | 103,952.42 |
| Brooklyn Savings & Loan Co. | 87,638.84 | 52,333.83 | 64.80 | 160.32 | 918.79 | 141,116.58 |
| Cleveland West Side Bau Verein. Industrial Building & Loan Association. | 75,158.81 | 1,205.00 | ..... | ..... | 285.71 | 76,649.52 |
| Employees' Savings, Loan & Building Co. | 21,636.95 | ..... | ..... | 78.55 | 105.00 | 21,820.50 |
| | 852.75 | 1.00 | ..... | 23.41 | ..... | 877.16 |
| Totals. | \$2,284,001.81 | \$346,590.40 | \$104,669.26 | \$58,672.41 | \$15,941.08 | \$2,809,874.96 |

X.—REAL ESTATE.

EXTENT OF PROPERTY TRANSACTIONS—A CONSERVATIVE YET RAPID GROWTH—NEW ALLOTMENTS—SUBURBAN DEVELOPMENT—MANUFACTURING SITES.

In Cleveland, as in all large cities, the transferring of property very probably involves a daily exchange of more capital than that involved in any other one line of business. Two hundred and twenty-six firms and individuals, maintaining offices in all parts of the city and employing a small army of clerks and other assistants, are engaged in this business here. They are, of necessity, men of ability who have fitted themselves by experience for the peculiar requirements of real estate work in Cleveland. These shrewd observers of the natural resources that attract capital to cities are of the opinion, without exception, that Cleveland will soon be the first city of the State. This opinion is based on the great progress of the city in the past five years, against most conservative ways of doing business. While other cities have been selling land by the foot at a distance of three to seven miles from the business portion, they say, Cleveland has been selling it by the acre.

Still, a marvelous growth in new buildings and transfers of realty is shown in the statistical tables presented herewith. Reports from the office of the city inspector of buildings, printed in detail among the statistical tables, show that in three years and seven months ending Dec. 31, 1891, the new buildings erected in the city numbered 9,425 and the addi-

tions 4,748. These improvements were made at a total estimated cost of \$18,141,932.

Real estate transfers and leases for ten years ending Dec. 31, 1891, number 68,683, involving a money consideration to the enormous aggregate of \$258,244,403, or an average of \$25,824,440 a year.

Wonderful instances of the increasing value of property in the business section of the city are found in the daily transactions. The value of realty on Superior street ranges from \$2,500 to \$4,000 per foot front, and the whole street from Water street to the Public Square could be disposed of at such figures very readily if the owners could be prevailed upon to sell. A pamphlet recently issued by one of the leading real estate houses contains the following: "In 1831, Leonard Case sold to Richard Hilliard, Edmund Clark and James S. Clark fifty-one acres in what has since been known as the Cleveland Centre Allotment for \$15,000. This property will sell to-day for \$1,500,000. Property corner of Water and Frankfort streets valued by the owner in 1849 at \$4,500 will sell to-day at \$75,000. Leonard Case, Sr., paid for eight acres, between Superior and St. Clair streets, east of the Square, \$250; sold, fifteen years later, about 21,000 square feet, that part where the government building stands, for \$30,000 cash. In 1853, Leonard Case sold S. S. Stone fifty-one acres on the side hill and flats, west of Pittsburg street on the river, for \$51,000. The Convent property fronting on the business section of Euclid avenue cost when purchased for convent purposes \$12,000; sold about two years ago for \$185,000."

It is estimated that no less than sixty large allotments have been laid out in the suburban districts within the past three years, and that within the same period homes to the number of about 6,000 have been provided after this system alone. On three sides of the city are areas that invite the home builder, and with street railway facilities unsurpassed by accommodations in this line in any other city of the country, the real estate dealers are compelled to bid high for popular favor. The property for these allotments is surveyed carefully; streets

wide and pleasant are laid out; then sewers, gas and water pipe are laid and this is followed in many cases by curbing and paving. In some of these allotments homes are prepared with all modern conveniences, spacious lawns and every detail ready for occupancy.

Reference is made among the list of trade associations to the Real Estate Board, a very prosperous body of recent organization.

SUBURBAN REAL ESTATE.

It is a remarkable fact that while real estate on Euclid avenue just east of the Public Square is held at \$2,500 a foot front, residence property on the same street that can be reached in twenty-five to thirty minutes on electric cars is freely offered at \$100 a foot. The property in the latter case is 300 feet deep and is, of course, within the city limits, in the vicinity of Wade Park and Lakeview Cemetery, with the street paved, sewer'd and lighted. This is only one example of many that might be cited to show that the city has had no boom in real estate and that property can be purchased cheaper here than in any other city of the country. No suburbs have been taken in of late years to swell the city's population, but it is evident now that the growth of several of the surrounding villages, where only country homes were to be found a few years ago, will soon force annexation, on account of the demand for better sewers, an increased water supply and better fire protection. Among these suburbs are Collamer, Collinwood, Euclid, Mayfield, Bedford, South Brooklyn, Brooklyn, West Cleveland and Glenville. Nearly all of these places now have direct communication with the city by electric street railway, and in the three latter villages annexation is strongly advocated. Berea, another village to the west of the city, is also being connected by electric railway.

A GREAT VARIETY OF MANUFACTURING SITES.

It is admitted by manufacturers who have recently begun business here that the most desirable manufacturing property can be secured at prices 35 to 50 per cent. cheaper than in Buffalo, Pittsburg or Detroit. The reason of this, they say, is plain. Buffalo has recently had a boom in manufacturing property that has placed prices beyond all reason in the valuation of real estate of this kind, and as against other cities Cleveland not only has miles of river front unused, but the drift of manufacturing establishments is to the great stretch of lake front, east and west, which has only within a few years been allotted to this purpose. The manufacturing property east on the lake shore is a tract opened up by the heirs of the late Leonard Case, and within ten years a large portion of it has been acquired by companies operating more than one hundred big works, most of them branches of the iron industry. This territory covering four miles or more of the northern boundary of a thickly populated portion of the city has complete water and sewer accommodations, with labor close at hand, in addition to direct connections with two trunk lines of railway, the Lake Shore and the Cleveland & Pittsburg, operated by the Pennsylvania Company. In most of the large works already located in this district, where the area is so great as to dispel any thought of it being entirely taken up for many years to come, the railway companies run switches into the buildings, and one of the greatest advantages derived by the works located on the extreme lake front is the readiness with which refuse can be disposed of. The refuse, which generally is difficult to deal with in works of great magnitude, can be dumped into the lake, and this operation gradually creates a valuable area available for the erection of additional works.

But the lake front is not the only place where large tracts of land available for manufacturing purposes are unoccupied and can be secured at low prices. Along the lines of the Cleveland & Pittsburg and N. Y., P. & O. railways, two

great coal roads, which are the Cleveland connections of the Pennsylvania Company and the Erie Railway, there are numerous manufacturing sites still open for lease or purchase. For two miles up the river beyond Jefferson street, and west of the river on the outskirts of the city to Rockport and Linndale there is another vast area of land, now offered at reasonable prices, that will certainly be built up with the beginning of traffic on the belt line railway. This belt line road, projected by Cleveland and Boston capitalists, and now about ready for service, starts from a point on the line of the Cleveland, Canton & Southern Railway just above Jefferson street, runs up the Cuyahoga valley to the mouth of the Big Creek in Brooklyn, bears west-northwest around the village of Brooklyn and intersects the line of the Big Four Railway at Chestnut Ridge road. The intention is to continue the line farther on and intersect the north branch of the Lake Shore Railway. This belt line road is intended mainly for the purpose of facilitating the switching of cars, but it will undoubtedly increase very largely the number of manufacturing establishments within the territory which it covers.

TRANSFERS OF REAL ESTATE FOR TEN YEARS PAST.

(From Cuyahoga County Records.)

| Year Ending Dec. 31. | Number of Transfers. | Amount of Consideration. | Number of Leases. | Amount of Consideration. |
|----------------------------|----------------------------|--------------------------------|-------------------------|--------------------------------|
| 1883 | 5,732 | \$20,158,019 | 320 | \$9,737,949 |
| 1884 | 6,006 | 12,209,213 | 247 | 809,042 |
| 1885 | 4,918 | 10,211,234 | 200 | 633,714 |
| 1886 | 5,361 | 10,824,585 | 285 | 1,306,032 |
| 1887 | 5,630 | 11,222,243 | 334 | 2,078,167 |
| 1888 | 6,706 | 12,186,938 | 266 | 139,977 |
| 1889 | 6,984 | 13,229,263 | 360 | 876,440 |
| 1890 | 8,097 | 118,761,951 | 329 | 200,481 |
| 1891 | 8,452 | 15,923,919 | 359 | 295,360 |
| 1892 | 7,763 | 17,313,650 | 334 | 126,226 |
| | 65,649 | \$242,041,015 | 3,034 | \$16,203,388 |

BUILDING STATISTICS OF THE CITY OF CLEVELAND.

Exhibit showing the whole number and estimated value of all buildings in the city of Cleveland on January 1, 1891, as compiled from official sources for the Eleventh Census of the United States, with number and estimated value of structures erected and the estimated value of additions, alterations and repairs made to old structures during the year 1891:

| Dwellings. | | | Barns. | | | Stores. | | | Mills and Shops. | | | Miscellaneous. | | | Totals. | | |
|--|------------------|--------------|------------------|-------------|------------------|--------------|------------------|-------------|------------------|--------------|------------------|----------------|------------------|-----|------------------|---------|------------------|
| No. | Estimated Value. | No. | Estimated Value. | No. | Estimated Value. | No. | Estimated Value. | No. | Estimated Value. | No. | Estimated Value. | No. | Estimated Value. | No. | Estimated Value. | No. | Estimated Value. |
| No. structures, } Jan. 1, 1891.....} | 38,463 | \$42,746,807 | 6,311 | \$1,855,810 | 3,034 | \$15,912,175 | 1,291 | \$5,238,565 | 740 | \$14,025,656 | 49,839 | \$79,779,013 | | | | | |
| New structures erected in 1891 } etc., etc., | 2,140 | 2,818,520 | 302 | 86,282 | 188 | 712,100 | 99 | 401,615 | 172 | 807,175 | 2,901 | 4,825,692 | | | | | |
| Additions, made to old structures in 1891 | | | 359,265 | ..... | 14,640 | ..... | 138,969 | ..... | 92,885 | ..... | 169,532 | ..... |  |  |  | 775,291 | |
| Totals, Jan. 1, 1892. | 40,603 | \$45,924,592 | 6,613 | \$1,956,732 | 3,222 | \$17,763,244 | 1,390 | \$5,733,065 | 912 | \$15,002,363 | 52,740 | \$85,379,996 | | | | | |

NOTE.—The number of structures as shown for January 1, 1891, was arrived at by actual count of the buildings reported by the ward assessors and is presumably correct so far as the first four items are concerned. Under the heading "Miscellaneous," the assessors undoubtedly failed to enumerate many structures of small cost, whereas the enumeration for 1891 includes all structures erected, as shown by the records in the office of the Building Inspector. The values placed on structures, as reported to the Census Office, were arrived at by a computation based upon data and information received from the Decennial Board of Equalization and approximates the real value in each instance. It is believed that the estimated value of structures erected in 1891, as shown in the table, is within 15 per cent. of the actual cost thereof.

STATEMENT, SHOWING THE NUMBER OF PERMITS ISSUED,
COST OF STRUCTURES, ETC., FOR EACH YEAR FROM
THE ORGANIZATION OF THE CITY OFFICE
OF BUILDING INSPECTOR.

| YEAR. | No. PERMITS ISSUED. | | | Total Estimated Cost. | Fees. | | |
|------------|---------------------|--------|-----------------|-----------------------------|-------------|--|--|
| | New Structures. | | Additions, Etc. | | | | |
| | Brick. | Frame. | | | | | |
| 1888* | 76 | 1,101 | 441 | \$3,031,988 | \$4,884 59 | | |
| 1889 | 115 | 2,486 | 1,302 | 4,401,854 | 9,664 75 | | |
| 1890 | 117 | 2,729 | 1,444 | 5,107,107 | 9,436 90 | | |
| 1891 | 144 | 2,757 | 1,561 | 5,600,983 | 8,415 63 | | |
| Total..... | 452 | 9,073 | 4,748 | \$18,141,932 | \$32,401 87 | | |

* For seven months, from June 1, 1888, the date of the organization of the office.

XI.—MUNICIPAL AFFAIRS.

NEW FORM OF LOCAL GOVERNMENT—TAXATION—MUNICIPAL DEBT—ASSESSED VALUATION—AREA—VIADUCTS—WATER WORKS—ETC.

Cleveland recently adopted a form of local government that has attracted a great deal of attention throughout the country, on account of the radical departure from old methods. The change was made after due deliberation and with the approval of leading commercial bodies and the best citizens generally, and now with almost two years of trial it can be pronounced a success in every particular.

The act giving the city a new charter was passed by the state legislature on March 16, 1891, and was known as the Municipal Reform bill. This measure does away with the system of "Board Government" and invests all executive authority in the mayor, to be elected by popular vote, he to appoint six heads of departments, as follows: Law, public works, police, fire, accounts, and charities and correction. All legislative authority is vested in a council of twenty members, elected from districts. Under the workings of the bill there is a distinct line between the executive and legislative branches of the municipal government. The council is the supreme and only legislative authority; the mayor and his advisers (constituting the board of control), the supreme and only executive authority.

Officials now serving as elected and appointed officers under the new act are:

Mayor—HON. WM. G. ROSE.

| | |
|------------------------|--|
| EDWARD S. MEYER..... | Director of Law. |
| R. R. HERRICK..... | Director of Public Works. |
| GEO. W. GARDNER..... | Director of Fire Service. |
| JOHN W. GIBBONS..... | Director of Police. |
| F. C. BANGS..... | Director of Accounts. |
| DAVID MORISON..... | { Director of Charities and Correction. |
| HOWARD H. BURGESS..... | City Clerk. |
| W. W. ARMSTRONG | City Treasurer. |

CITY COUNCIL.

OFFICERS.

| | |
|-------------------------|---------------------|
| C. A. DAVIDSON..... | President. |
| ALBERT STRAUS..... | Vice President. |
| HOWARD H. BURGESS | City Clerk. |
| J. J. DALTON..... | |
| A. B. HALL..... | { Assistant Clerks. |
| L. J. ROWBOTTOM..... | |
| EDWARD MANNING..... | Page. |
| J. F. J. DAVIS..... | Sergeant-at-Arms. |

MEMBERS EX OFFICIO.

| | |
|----------------------|--|
| WM. G. ROSE | Mayor. |
| EDWARD S. MEYER..... | Director of Law. |
| R. R. HERRICK..... | Director of Public Works. |
| GEO. W. GARDNER..... | Director of Fire Service. |
| JOHN W. GIBBONS..... | Director of Police. |
| F. C. BANGS..... | Director of Accounts. |
| DAVID MORISON..... | { Director of Charities and Correction. |

MEMBERS OF THE COUNCIL.

| | |
|---------------------|--------------------|
| E. E. BEEMAN, | D. O. CASWELL, |
| B. W. JACKSON, | E. C. ANGELL, |
| P. J. MCKENNEY, | JOHN SKYRM, |
| P. C. O'BRIEN, | M. J. HERBERT, |
| J. C. FARNFIELD, | MICHAEL RILEY, |
| J. K. BOLE, | M. C. MALLOY, |
| C. A. DAVIDSON, | JOHN WILHELM, |
| A. J. MICHAEL, | W. A. SPILKER, |
| ALBERT STRAUS, | JOSEPH J. PTAK, |
| WALTER I. THOMPSON, | FRED. M. GIJESSEN. |

TAXATION IN 1891.

| | |
|---|---------------|
| Assessed value of real estate..... | \$89,512,700 |
| Assessed value of personal property..... | 28,320,500 |
| Total valuation of taxable city property..... | \$117,833,205 |
| Real valuation..... | 500,000,000 |
| Property exempt from taxation..... | 18,000,000 |

The taxation per capita, according to the Eleventh Census returns, has been reduced from \$13.39 in 1880 to \$11.17 in 1890; the debt per capita is reduced from \$40.38 in 1880 to \$23.51 in 1890, and the tax rate on \$100 of valuation from \$3.04 in 1880 to \$2.93 in 1890. This year (1892) the tax rate on \$100 of valuation is but \$2.75.

DEBT OF THE CITY, JANUARY 1, 1891.

| | |
|-------------------------------------|-----------------------|
| General bonds outstanding..... | \$7,283,000.00 |
| Special bonds outstanding..... | 1,150,700.00 |
| Overdrafts in special accounts..... | 201,186.73 |
| Notes for temporary loans..... | 100,405.00 |
| Total..... | \$8,735,291.73 |

ASSETS AND SINKING FUND, JANUARY 1, 1891.

| | |
|---|------------------------|
| Total par value of sinking funds..... | \$2,027,050.69 |
| Armory buildings and grounds, estimated..... | 54,000.00 |
| Bridges and appurtenances..... | 430,000.00 |
| Fire department, real estate and equipments, including fire boat..... | 432,163.00 |
| Infirmary farm and buildings..... | 201,673.00 |
| Public parks..... | 1,400,000.00 |
| Land, miscellaneous parcels..... | 79,604.00 |
| Market land and buildings..... | 164,295.00 |
| Police department, real estate, etc..... | 180,163.46 |
| Pest house and farm..... | 10,000.00 |
| School department, real estate..... | 2,138,654.00 |
| Viaduct, Superior Street..... | 2,150,000.00 |
| Viaduct, Central..... | 885,000.00 |
| Viaduct, Kingsbury Run..... | 210,000.00 |
| Water works, real estate and equipments..... | 5,684,272.70 |
| Workhouse, grounds and buildings..... | 631,633.00 |
| Total..... | \$16,534,353.84 |

WEALTH, DEBT AND TAXATION OF THE CITY OF CLEVELAND.
(United States Census.)

| ITEMS. | 1880 | 1890 | INCREASE 1880 TO 1890 | DECREASE 1880 TO 1890 |
|--|--------------|--------------|--------------------------------|--------------------------------|
| Assessed value of real estate..... | \$52,481,710 | \$72,734,940 | \$20,253,230 | ..... |
| Assessed value of personal property..... | 18,066,394 | 26,879,115 | 8,812,721 | ..... |
| Total valuation..... | \$70,548,104 | \$99,614,055 | \$29,065,951 | ..... |
| Taxation for state purposes..... | \$204,594 | \$278,919 | \$74,325 | ..... |
| Taxation for county..... | 216,053 | 268,958 | 52,905 | ..... |
| Taxation for city..... | 1,723,304 | 2,370,815 | 647,511 | ..... |
| Total taxation..... | \$2,143,947 | \$2,918,692 | \$774,745 | ..... |
| Debt bonded..... | \$8,591,100 | \$8,098,700 | ..... | \$492,400 |
| Debt floating..... | 143,881 | ..... | ..... | 143,881 |
| Sinking fund..... | 2,267,935 | 1,955,494 | ..... | 312,441 |
| Net debt..... | \$6,467,046 | \$6,143,206 | ..... | \$323,840 |
| Valuation per capita..... | \$440.52 | \$381.15 | ..... | *\$59.37 |
| Taxation per capita..... | 13.39 | 11.17 | ..... | .22 |
| Debt per capita..... | 40.38 | 23.51 | ..... | 16.87 |
| Tax rate on \$100 of valuation..... | 3.04 | 2.93 | ..... | .11 |

*Accounted for largely by low rate of assessment, which is due, to some extent, to system of "double taxation" in force in the state.

CITY WATER WORKS.

The total cost of construction in the water works department of the city to Jan. 1, 1892, was \$6,280,656.17. Water works bonds outstanding on the same date amounted to only \$1,775,000. The net earnings of the department in 1891 were \$419,874.43.

The system consists of two tunnels extending under the bed of the lake for a distance of 8,642 feet, where the water enters the crib. The main pumping station consists of two buildings, containing together six pumps, with a capacity of 70,000,000 gallons daily.

A separate nine-foot tunnel to extend 12,000 feet further into the lake is proposed.

The High Service pumping station is located on Woodlands Hill avenue at Norman street. It pumps from the

Low Service reservoir at Fairmount street to the High Service reservoir on Kinsman street, thereby affording an equal distribution of water to the higher portions of the city. Following is a statement of the capacity and consumption in 1891:

| | <i>Gallons.</i> |
|-----------------------------------|-----------------|
| Pumping capacity, daily..... | 70,000,000 |
| Average daily consumption..... | 32,237,077 |
| Increase daily over 1890..... | 356,844 |
| Total consumption, full year..... | 11,766,533,132 |
| Each inhabitant per day..... | 111.16 |
| Each consumer per day..... | 136.02 |

The number of connections with residences, manufactories, etc., is 33,490.

The Fairmount or Low Service reservoir has a capacity of 80,000,000 gallons, and the Kinsman or High Service reservoir 35,000,000 gallons, making a total of 115,000,000 gallons.

MISCELLANEOUS DATA.

AREA OF CITY.

| | |
|-------------------------|---------------------|
| Area of East Side..... | 19.52 square miles. |
| Area of West Side | 6.96 " " " |
| Total area of City..... | 26.48 " " " |

STREETS AND ALLEYS.

Number of streets in the city, 2,303.

The city contains within its limits 470.48 miles of streets, classified as follows:

Graded streets, 85.6 miles.

Graded and curbed street, 64.1.

Paved streets and alleys, 88.3 miles.

Many other streets have been graded by parties making allotments.

SEWERAGE.

Main and branch sewers, 179.68 miles.

House sewer connections, 16,652.

Catch basins, 3,752.

BRIDGES.

Ten city swing or draw bridges.
Ten railroad swing or draw bridges.
Forty stationary bridges, city and railroad.

BIRTHS AND DEATHS.

| | |
|--------------------------------------|-------|
| Births in 1891..... | 8,682 |
| Deaths in 1891, from all causes..... | 5,204 |

DOCKS AND WATER FRONTS.

Lake frontage, 5.65 miles.
River frontage, 16 miles.
Public docks, improved, frontage, 2,439 feet.
Public docks, unimproved, frontage, 3,091 feet.

SUPERIOR STREET VIADUCT.

Masonry, West End, ten arches. Number of perches (25 cubic feet), 80,500.
Iron work, East End, total weight, 792 tons.
Weight of pivot span, 570 tons.
Weight of turntable, 105 tons.
Total length of viaduct, 3,211 feet.
Width of pivot span, 46 feet.
Width of remainder of structure, 64 feet.
Height of top of pivot span above water mark, 68 feet.
Lineal feet, white oak piling, 227,000 feet.
Time of opening or closing pivot span, 1 minute.
Engine for pivot span, 50-horse power.
Cost of structure, \$2,250,000.
Work began August, 1874; completed and dedicated December 27, 1878.

KINGSBURY RUN VIADUCT.

Total length over valley, 834 feet, 8 inches; consisting of 1 span 140 feet, 0 inches; 6 spans 60 feet, 0 inches; 2 spans 45 feet, 0 inches; and 8 spans 20 feet, 0 inches, each.

Height above masonry, 75 feet, 6 inches; above creek, 87 feet; above foundation, 96 feet.

Width in the clear, 48 feet, 0 inches; roadway, 36 feet; sidewalks, 6 feet, 0 inches, each.

Length over N. Y., C. & St. L. R'y tracks, 228 feet, 6 inches.

Height above track, 38 feet, 6 inches (1 span 112 feet, 2 spans 56 feet).
Width, 48 feet, 0 inches.

Work began, November, 1884; completed, June, 1886.

CENTRAL VIADUCT.

CUYAHOGA VALLEY PORTION.

Length of floor, 2,838 feet.
 Height above city base of levels at river, 99 ft., 2 in.
 Height above river, ordinary stage, 101 ft., 0 in.
 Height above N. Y., C. & St. L. R'y tracks, 33 ft., 5 in.
 Length of draw span (floor), 239 ft., 0 in.
 Width of roadway, 40 ft., 0 in.
 Width of sidewalks, 8 ft., 0 in.
 Grade, 0.3 feet per 100.

WALWORTH RUN PORTION.

Length of floor, 1,092 feet.
 Height above city base of levels at N. Y., C. & St. L. R'y, 105 ft., 6 in.
 Height above N. Y., C. & St. L. R'y tracks, 35 ft., 0 in.
 Height above Scranton avenue, 76 ft., 6 in.
 Height above C., C., C. & I. R'y tracks, 68 ft., 6 in.
 Width of roadway, 40 ft., 0 in.
 Width of sidewalks, 8 ft., 0 in.
 Grade, 0.5 feet per 100.
 Distance from intersection of Central avenue and Harrison street to
 Abbey street abutment, 5,425 ft.
 Work began May, 1886; completed, December, 1888.

RELATIVE DIMENSIONS.

For the sake of comparison, the following relative figures are given for the Central and Superior street Viaducts:

| | <i>Superior.</i> | <i>Central.</i> |
|---|------------------|-----------------|
| Total length of structure proper..... | 2,482 feet. | 3,931 feet. |
| Total length, including approaches..... | 3,211 " | 5,229 " |
| Width of roadway..... | 42 " | 40 " |
| Elevation above river..... | 68 " | 101 " |
| Total width pivot span..... | 46 " | 56 " |
| Cost exclusive of right of way..... | \$1,600,000 | \$675,574 |
| Time of construction..... | 4 yrs., 4 mo. | 2 yrs., 7½ mo. |

XII.—COMMERCIAL BODIES.

BRIEF HISTORY OF THE CLEVELAND BOARD OF TRADE— OFFICERS, COMMITTEES AND MEMBERS—THE NEW MOVEMENT—BOARD OF INDUSTRY, BUILDERS' EXCHANGE, AND KINDRED ORGANIZATIONS.

The Cleveland Board of Trade, organized July 7th, 1848, was among the first commercial organizations of the country. Preliminary arrangements for the formation of the board were made at a meeting held on that date in the Weddell House, at which William Milford presided and S. S. Coe acted as secretary. The first meeting of the board for the transaction of business was held on August 10th, 1848, in the rooms of Stephen Clary, foot of Superior street, and the first officers were: Joseph L. Weatherly, president; W. F. Allen, Jr., vice-president; Charles W. Coe, secretary; R. T. Lyon, treasurer. Among the first members of the board were the following: Joseph L. Weatherly, W. F. Allen, Charles W. Coe, R. F. Lyon, Philo Chamberlain, John B. Waring, Richard Hilliard, E. M. Fitch, L. M. Hubby, J. Gillette, William Milford, Stephen Clary, Augustus Handy, S. S. Coe, Charles Hickox, Thomas Walton, Sheldon Pease, S. S. Stone, James Ransom, John E. Lyon, Wm. Mittleberger, R. K. Winslow, N. C. Winslow, Arthur Hughes, Eli Morgan, Samuel A. Foote, W. B. Guyles, M. B. Scott, Grove Woodward, W. F. Otis, B. F. Smith, E. N. Parks, J. G. Ransom, George Bradburn, O. M. Oviatt and John F. Warner.

Mr. Weatherly was repeatedly elected presiding officer of this original body until 1864, when he was succeeded by Mr. S. F. Lester. It was not until 1866 that the Ohio legislature recognized commercial bodies of this kind by the enactment of a law for their government. On April 5th of that year the Cleveland Board of Trade surrendered the articles of association, under which it had existed for eighteen years, and immediately reorganized under the new law, becoming a chartered institution, under the name and title of the "Board of Trade of the City" of Cleveland. The principles of the old association were repeated in the charter of the new body as follows:

"The objects of said association are to promote integrity and good faith, just and equitable principles of business, to discover and correct abuses, to establish and maintain uniformity in commercial usages, to acquire, preserve and disseminate valuable business statistics and information, to prevent or adjust controversies and misunderstandings which may arise between persons engaged in trade, and generally to foster, protect and advance the commercial, mercantile and manufacturing interests of the city."

The names affixed to this charter of April 5th, 1866, are as follows: Philo Chamberlain, A. V. Cannon, R. T. Lyon, E. D. Childs, J. C. Sage, W. F. Otis, A. Hughes, M. B. Clark, C. W. Coe, W. Murray, H. S. Davis, S. F. Lester, J. E. White, A. Quinn, J. H. Clark, Geo. W. Gardner, S. W. Porter, E. C. Hardy, H. D. Woodward and George Sinclair.

PRESENT ORGANIZATION OF THE BOARD OF TRADE.

The present organization of the board is shown in accompanying lists of officers and members. Its membership, numbering 485 on Sept. 1st, 1892, is larger than at any time in its history. A surplus of about \$20,000 deposited in sav-

ings banks is held for the purchase of a site and the construction of a suitable building in the central portion of the city.

Most important among the work which the board now has on hand is a new movement for the advancement of mercantile and manufacturing interests. In August of this year the Committee on the Promotion of Industry began the collection of what is known as the business men's fund and the organization of a movement within the Board of Trade, made up of subscribers to this fund. Through earnest work on the part of a few active members of the board this fund ran up to a considerable sum of money in a short period. Seven business men from among the subscribers to the fund were added to the original Board of Trade committee, and a new general committee formed, as follows, to conduct the industrial work: W. M. Day, chairman; L. E. Holden, vice-chairman; George T. McIntosh, secretary; H. R. Groff, treasurer; A. J. Wright, Michael Baackes, Myron T. Herrick, F. W. Bell, C. C. Burnett, L. W. Bingham, L. McBride, D. A. Dangler, Geo. Deming and W. J. Morgan. This committee, representing nearly 100 of the most substantial and progressive business concerns of the city, met on Sept. 24th, and appointed Mr. Ryerson Ritchie to the position of superintendent of industry. This officer, who comes to the city well recommended from the Commercial Club of Kansas City, Mo., will, under the direction of the new body within the Board of Trade, devote attention to encouraging the location of new manufacturing and mercantile establishments in the city, and will also have in hand the matter of securing advantageous freight facilities for shippers, of collecting and disseminating statistics, studying Ohio tax laws with a view to securing reform in the same, of watching municipal and State legislation of importance to Cleveland's business interests, and in general of drawing business men closer together on all public questions.

OFFICERS OF THE CLEVELAND BOARD OF TRADE

FOR 1892-93.

President,

WILLIAM EDWARDS.

First Vice-President,

D. A. Dangler.

Second Vice-President,

A. WIENER.

Secretary and Treasurer,

A. J. BEGGES.

Directors,

H. R. GROFF,

S. A. HOFFMAN,

HON. GEO. H. ELY,

J. M. CURTIS,

VICTOR A. REHARK,

JAMES HANDYSIDE,

C. B. LOCKWOOD,

D. E. MCLEAN,

CAPT. THOS. WILSON,

C. H. PRESCOTT.

COMMITTEES FOR 1892-93.

Arbitration.—T. W. Evans, T. S. Clymonts, H. C. Burt.*Appeals.*—D. Martin, Geo. W. Lewis, Thomas F. Crotty.*Inspection.*—W. F. Putnam, W. J. Salter, C. A. Guthrie, E. M. Folsom, M. E. Johnson.*Apples, Onions, Potatoes, Etc.*—Geo. Davies, A. B. Williams, H. M. Strauss.*Butter, Cheese, Eggs, Etc.*—A. E. Kelly, G. G. Willard, W. E. Bigalow, S. P. Thrasher, W. A. Banks, A. R. Duncan, Jr.*Inspector of Grain, Flower Seeds and Board of Trade Weigher.*—S. S. Gardner.*Inspector of Fish.*—John Kingsborough.*Inspector of Beef, Pork and Lard.*—L. M. Eirich.*Telegraph and Postal Facilities.*—E. P. Wright, C. H. Prescott, H. F. Fulton, John Teagle, Oscar Townsend, Prof. E. R. Felton, James P. McKinstry.*Insurance and Fire.*—L. W. Bingham, T. H. Geer, Henry Pears, George H. Olmsted, Capt. W. B. Scott, T. H. Atkinson.*Bank and Banking Facilities.*—E. R. Perkins, Geo. A. Garretson, J. J. Sullivan, P. M. Spencer, Joseph Colwell, H. C. Ellison, Thomas H. Wilson, E. H. Bourne, L. S. Severance, Samuel Mather.*Auditing.*—A. R. Manning, John Pollock, S. C. Lovis.*Rules and Call Board.*—Geo. W. Lewis, B. Mahler, H. Morganthaler.*Lake and Rail Transportation.*—H. S. Blossom, T. F. Newman, R. H. Jenks, J. M. Booth, J. S. Dickle, E. W. Oglebay, George T. McIntosh.

Lake and Harbor Improvements.—Hon. Geo. H. Ely, Hon. M. A. Hanna, James Corrigan, B. L. Pennington, Capt. Thos. Wilson, M. A. Bradley, H. J. Webb, Capt. J. W. Moore, H. D. Goulder.

Membership.—M. D. Leggett, Gen. Jas. Barnett, T. M. Irvine.

Publication of Statistics.—L. E. Holden, E. H. Perdue, J. M. Wilcox, J. W. Gibbons.

Real Estate.—V. C. Taylor, C. H. Kidder, Elton Hoyt, John Pollock, W. H. Van Tine, Jr., John Collahan, J. G. W. Cowles.

Permanent Exposition.—Hon. Geo. W. Gardner, J. Steinfeld, Hon. J. C. Covert, J. S. Dickle, H. M. Clafien, W. J. Akers, Chas. Wesley, D. S. Davis, D. R. Hawley, Conrad Mizer.

Promotion of Industry.—W. M. Day, A. J. Wright, Geo. T. McIntosh, Michael Baackes, Theodore Kundtz, F. W. Bell, C. C. Burnett.

Immigration.—R. K. Hawley, N. C. Brewer, Luke Brennan, David W. Johns, Col. L. Smithnight.

Sanitation.—R. T. Lyon, Dr. W. P. Horton, Geo. Cooper.

River and Canal Transportation.—J. C. Hemmeter, B. F. Powers, C. E. Grover, Patrick Smith, John W. Averill.

Manufactures and Promotion of Trade.—Hon. D. A. Dangler, Wm. Chisholm, H. S. Blossom, Geo. H. Worthington, J. M. Sterling, H. M. Clafien, H. W. Avery, Chas. W. Burrows, S. C. Ford, O. G. Kent, J. B. Perkins, M. Baackes.

Municipal Affairs.—W. J. Akers, Daniel Myers, M. G. Watterson, John M. Wilcox, E. D. Sawyer, Louis Black, H. N. Noyes, A. T. Anderson, S. A. Hoffman, W. G. Andrews, J. C. Weideman.

Public Improvements.—Col. A. McAllister, H. R. Groff, C. B. Lockwood, M. T. Herrick, J. A. Beidler, O. M. Stafford, S. C. Ford, E. M. Folsom, D. E. McLean, Capt. Thos. Wilson, S. H. Chisholm, Joseph Pinkett, Frank Rockefeller, S. C. Smith, R. H. Boggis, Geo. T. McIntosh, O. D. Myer, M. A. Hanna, F. F. Hickox, T. W. Evans, J. J. Striebinger, E. B. Cornell, W. P. Champney, Webb C. Ball, A. T. Hubbard, C. E. Burke, Geo. W. Cady, Col. H. E. Hill, Arthur L. Stone, S. Lederer, C. A. Selzer, R. H. Fetterman, Douglas Perkins, M. G. Browne, Chas. Selden, W. J. Hilands, Geo. Hoyt, B. L. Pennington, Wm. G. Mather, Wm. Greif, Hon. J. C. Covert, H. W. Hubbard, D. Martin, Sol. Sloss.

Executive Committee.—Wm. Edwards, James Handyside, L. McBride.

Prices of Grain and Revision.—James Handyside, Geo. W. Lewis, D. E. McLean, Andrew Schmitt.

Revision of Daily Quotations on Produce.—Geo. Davies, T. S. Clymont, W. E. Bigelow.

Strikes and Arbitration.—C. B. Lockwood, A. R. Manning, H. D. Goulder, S. H. Curtiss, Gen. Jas. Barnett, Hon. Geo. W. Gardner, Hon. Amos Townsend.

Dockage.—Capt. E. Day, Patrick Smith, Capt. Geo. Warner, C. E. Grover, W. P. Murray, Calvary Morris.

Sewerage.—C. C. Dewstoe, Thos. Simmons, R. J. Clements, Wm. McReynolds, Thomas Wood, B. F. Morse.

Street Railroads.—W. I. Lindsay, J. B. Perkins, Geo. W. Short, D. E. McLean, H. E. Prindle, O. M. Stafford, F. L. Robinson, Theodore Kundtz, A. T. Van Tassel, E. H. Towson, T. M. Irvine.

Ways and Means.—Hon. D. P. Eells, L. E. Holden, T. D. Crocker, E. R. Perkins, W. S. Jones.

Public Safety.—Gen. Jas. Barnett, S. M. Strong, A. S. Upson, R. K. Hawley, W. J. McKinnie, Joseph Ingersoll, M. J. Caton, C. K. Halle.

Topics for Discussion.—Prof. E. R. Felton, E. J. Farmer, W. M. Day, Hon. Geo. H. Ely, Hon. T. E. Burton.

New Board of Trade Building.—J. B. Perkins, Samuel Mather, J. H. Wade, Jr., M. T. Herrick, C. W. Bingham.

Site for New Building.—Hon. Amos Townsend, H. R. Hatch, A. Wiener, E. M. Folsom, W. H. H. Peck, W. H. Bosworth.

Plan of Building.—C. G. Hickox, M. E. Johnson, M. B. Clark, A. Swasey, M. G. Bourne.

Subject of Labor.—W. M. Bayne, W. W. Baldwin, N. D. Fisher, C. M. Gillette, Chas. Herrmann.

Taxation.—L. McBride, Elton Hoyt, T. H. White, Hon. David Morison, D. A. Dangler, W. H. Lamprecht, Hon. T. E. Burton, J. M. Curtiss, J. S. M. Hill.

MEMBERS OF THE CLEVELAND BOARD OF TRADE,
SEPTEMBER 1, 1892.

| | |
|--------------------------|------------------------------------|
| Adams, A..... | Adams, Jewett & Co. |
| Anderson, A. T..... | Postmaster. |
| August, D..... | Clothier. |
| Avery, H. W..... | Avery Stamping Co. |
| Atkinson, T. H..... | Fire Insurance. |
| Akers, William J..... | Proprietor Forest City House. |
| Averill, John W..... | Fish Dealer. |
| Andrews, William G..... | Lewis & Andrews. |
| Burt, H. C..... | H. C. Burt & Son. |
| Barnett, Gen. James..... | President First National Bank. |
| Booth, J. M..... | Freight Agent, N. Y. & L. E. R. R. |
| Blossom, H. S..... | The William Bingham Co. |
| Burgess, Solon..... | Burgess & Ross. |
| Brown, Harvey H..... | Harvey H. Brown & Co. |
| Bowler, N. P..... | Bowler & Co. |
| Bingham, L. W..... | Bingham & Douglass. |
| Bingham, C. W..... | The William Bingham Co. |
| Beidler, J. A..... | The Rhodes & Beidler Coal Co. |
| Brayton, Charles A..... | Maher & Brayton. |
| Baldwin, W. W..... | The Co-Operative Stove Co. |

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| Burt, A. E..... | H. C. Burt & Son. |
| Brooks, S. C..... | Retired. |
| Boggis, R. H..... | The Taylor & Boggis Foundry Co. |
| Black, Louis..... | The Sheriff Street Market House and Storage Co. |
| Bradstreet Co..... | Mercantile Agency. |
| Babcock, Charles..... | Babcock, Hurd & Co. |
| Bourne, E. H..... | Cashier Union National Bank. |
| Burnett, C. C..... | Sturtevant Lumber Co. |
| Browne, M. G..... | The M. G. Browne Lumber Co. |
| Bell, F. W..... | Bell, Cartwright & Co. |
| Brooks, H. E..... | The Brooks Building Co. |
| Burke, C. E..... | Lake Shore Foundry Co. |
| Begges, A. J..... | Secretary Board of Trade. |
| Bigalow, W. E..... | W. E. Bigalow & Co. |
| Bayne, W. M..... | Job Printing. |
| Bryan, Al..... | Bryan & Co. |
| Barge, Alfred J..... | Barge & Gross. |
| Bailey, K. B..... | Grasseli Chemical Co. |
| Burton, Hon. T. E..... | Burton & Dake. |
| Bowman, Israel T..... | I. T. Bowman & Sons. |
| Britton, C. S..... | The Clark-Britton Printing Co. |
| Brewer, N. C..... | The Rubber Paint Co. |
| Bailey, L. A..... | Dry Goods. |
| Banks, W. A..... | Banks, Ballinger & Co. |
| Black, P. F..... | Stoll & Black. |
| Ball, Webb C..... | Jewelry. |
| Brennan, John F..... | Paving Contractor. |
| Bradley, M. A..... | Vessel Owner. |
| Burrows, Charles W..... | The Burrows Bros. Co. |
| Bole, J. K..... | Otis Steel Co. |
| Bassett, A. L..... | A. L. Bassett & Co. |
| Barstow, S. K..... | Vincent, Barstow & Co. |
| Beaumont, W. H..... | Florist. |
| Benham, C. E..... | Benham & Dorille. |
| Baackes, Michael..... | The Baackes Wire Nail Co. |
| Bishop, George T..... | Commercial Agent T., St. L. & K. R. R. |
| Bower, B. F..... | Manager World. |
| Baer, F. H..... | Nickel Plate R. R. |
| Bailey, W. N..... | Broker. |
| Bosworth, W. H..... | Parkin & Bosworth Co. |
| Brennan, Luke..... | Paving Contractor. |
| Beecher, A. S..... | Commission Merchant. |
| Boardman, W. H..... | Standard Lighting Company. |
| Burgess, Howard H..... | City Clerk. |
| Clark, M. B..... | Union Elevator Co. |
| Clymonts, T. S..... | Commission Merchant. |
| Colwell, Joseph..... | Vice President Commercial National Bank. |
| Clafien, H. M..... | President Clafien Paving Co.. |

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| Curtiss, S. H..... | Smith & Curtiss. |
| Cowles, J. G. W..... | Real Estate. |
| Chandler, G. H..... | The Chandler & Rudd Co. |
| Crooks, J. J..... | Manager Fairbanks, Morse Co. |
| Cooper, George..... | George Cooper & Co. |
| Cain, William..... | Grain, Provisions and Stock Broker. |
| Cady, George W..... | George W. Cady & Co. |
| Corrigan, James..... | Corrigan, Ives & Co. |
| Cornell, E. B..... | Camp Creek Coal Co. |
| Cottrall, R. P..... | Manager R. G. Dun & Co. |
| Chisholm, William..... | President Cleveland Rolling Mill Co. |
| Crocker, T. D..... | Retired. |
| Curtiss, J. M..... | Real Estate. |
| Chisholm, S. H..... | President HP. Nail Co. |
| Cohen, Ralph..... | Millinery, Straw Goods and Cloaks. |
| Canfield, H. F..... | Manager Cooper Insurance Co. |
| Crocker, E. J..... | Commission Merchant. |
| Crotty, Thomas F..... | Crotty & Thomas. |
| Clements, Robert J..... | Clements Bros. |
| Connolly, J. D..... | Manager Ohio Rubber Co. |
| Caton, M. J..... | President Euclid Avenue Business College. |
| Conger, J. W..... | Auld & Conger. |
| Champney, W. P..... | Vice President Eberhard Manufacturing Co. |
| Collings, C. H..... | Conger & Collings. |
| Claffin, George D..... | Treasurer Central Paper & Fiber Co. |
| Crozier, G. W..... | Commission Merchant. |
| Crosby, A. F..... | Commission Merchant. |
| Colahan, John..... | Real Estate. |
| Card, H. P..... | Wholesale Coal Dealer. |
| Chamberlin, James..... | Cleveland Desk Co. |
| Coleman, R. T..... | President Austin Powder Co. |
| Caven, J. B..... | General Freight Agent Valley R. R. |
| Crozier, George M..... | Contracting Agent L. S. & M. S. R. R. |
| Catalano, Casino..... | Fruit Merchant. |
| Chandler, C. R..... | C. Chandler Sons. |
| Day, Capt. E..... | Superintendent N. Y., P. & O. Ore Docks. |
| Davies, George..... | Commission Merchant. |
| Duncan, A. R., Jr..... | Commission Merchant. |
| Dickle, J. S..... | Manager Excelsior Clothing Store. |
| Doering, J. C..... | Doering Bros. & Sons. |
| Davidson, C. A..... | Davidson & House. |
| Davis, D. S..... | Proprietor Kennard House. |
| Ditto, P. W..... | State Agent Travellers' Insurance Co. |
| Dewstoe, C. C..... | Dewstoe & Schneider. |
| Decker, E..... | Photographer. |
| Deutsch, A. S..... | Deutsch & Co. |
| Doville, Capt. J..... | Vessel Owner. |
| Dangler, D. A..... | President Dangler Stove & Manufacturing Co. |

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| Day, W. M. | President Cleveland Printing & Publishing Co. |
| DeKlyn, J. F. | J. F. DeKlyn & Co. |
| Deming, George | Vice-President The George Worthington Co. |
| Dietz, William G. | With Lamprecht Bros. & Co. |
| Dunham, T. G. | Vice President Griswold Linseed Oil Co. |
| Dodge, Martin | Real Estate. |
| Drake, F. J. | Vessel Broker. |
| Edwards, William | William Edwards & Co. |
| Evans, T. W. | Commission Merchant. |
| Ely, George H. | President Central National Bank. |
| Eells, D. P. | President Commercial National Bank. |
| Eyears, Alfred | Merchant Tailor. |
| Ellison, H. C. | Cashier State National Bank. |
| Ellenberger, F. H. | N. Mills & Co. |
| Elmer, F. C. | Manufacturer Perry's Pies. |
| Eirich, L. M. | Beef, Pork and Lard Inspector. |
| Eggers, F. H. | Manufacturer of Brick. |
| Edson, E. R. | Fish Dealer. |
| Felton, E. R. | Spencer, Felton & Loomis. |
| Folsom, E. M. | Flour and Feed. |
| Ford, S. C. | Adams & Ford. |
| Fisher, N. D. | Fisher-Wilson Co. |
| Foster, N. K. | Planing Mill. |
| Foster, E. H. | Plumber Supplies. |
| Farmer, E. J. | Manager Magna Charta Mining Co. |
| Farley, T. S. | Agent Travellers' Insurance Co. |
| Feder, E. | Feder Bros. |
| Fox, L. H. | F. Smead & Co. |
| Fanning, Jos. P. | Commission Merchant. |
| Ford, Capt. George A. | Machinist. |
| Fetterman, R. H. | Fine Shoes. |
| Fulton, H. F. | Young & Fulton Lumber Co. |
| Foote, Horace | Insurance. |
| Fuller, H. A. | Union Rolling Mill Co. |
| Gardner, Hon. George W. | Director of Fire Service. |
| Gibbons, J. W. | Director of Police. |
| Gardner, S. S. | Grain and Flour Inspector. |
| Groff, H. R. | Childs, Groff & Co. |
| Gifford, J. B. | D. Martin & Co. |
| Guthrie, C. A. | Otis Elevator Co. |
| Greif, William | Greif Bros. |
| Garretson, George A. | President National Bank of Commerce. |
| Gillett, Charles M. | Manager Forest City Spring Works. |
| Graves, S. E. | Clothier. |
| Goulder, H. D. | Attorney. |
| Gaensslen, Philip | Gaensslen Bros. |
| Geer, Thomas H. | Insurance. |
| Gabriel, W. H. | Internal Revenue Collector. |

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| Grover, C. E..... | J. W. Grover & Son. |
| Green, J. O..... | Carriage Repository. |
| Gage, H. H..... | H. N. Gage & Son. |
| Gerrard, William R..... | Manager O. & P. Coal Co. |
| Garlock, W. H..... | W. H. Garlock & Co. |
| Gebauer, H. W..... | Insurance. |
| Green, R. L..... | Commission Merchant. |
| Gowen, Caleb E..... | General Manager Kelly Island Co. |
| Grossman, M..... | Paper Box Co. |
| Garrard, Henry H..... | Garrard & Bartlett. |
| Gerlach, P. R..... | Pictet Ice Co. |
| Gibbons, A. W..... | Union Elevator Co. |
| Gager, J. P..... | American Express Co. |
| Hickox, C. G..... | Office Hickox Building. |
| Hickox, F. F..... | Office Hickox Building. |
| Hoffman, S. A..... | Commission Merchant. |
| Hatch, H. R..... | E. I. Baldwin, Hatch & Co. |
| Handyside, James..... | Flour and Feed. |
| Hanna, M. A..... | M. A. Hanna & Co. |
| Handy, T. P..... | Retired. |
| Hanna, H. M..... | President Globe Iron Works Co. |
| Hathaway, Charles..... | Hathaway & Robinson. |
| Hower, J. G..... | Hower & Higbee. |
| Haserot, S. F..... | S. F. & F. H. Haserot & Co. |
| Holden, L. E..... | Proprietor The Hollenden. |
| Halle, C. K..... | Halle, Skall & Co. |
| Hart, E. L..... | Hart & Co. |
| Hawley, R. K..... | President Cleveland Saw Mill & Lumber Co. |
| Hills, C. C..... | Secretary and Treasurer Cleveland Provision Co. |
| Hill, H. E..... | H. E. Hill & Co. |
| Hills, Addison..... | Assistant to President L. S. & M. S. R. R. |
| Herrman, Charles..... | Commission Merchant. |
| Heyse, Ernst..... | Caterer and Confectioner. |
| Hayes, H. E..... | W. J. Hayes & Son. |
| Housum, B. W..... | B. W. Housum & Co. |
| Herrick, Myron T..... | Secretary and Treasurer Society for Savings. |
| Hills, C. J..... | Rouse, Hills Co. |
| Hawley, David R..... | Hawley Bros. |
| Horton, Dr. W. P..... | W. P. Horton & Son. |
| Hoyt, George..... | George Hoyt & Co. |
| Hubbard, H. W..... | Merchant Tailor. |
| Hoyt, Elton..... | James M. Hoyt & Son. |
| Holmes, John H..... | Wiedeman, Holmes & Co. |
| Herold, Alfred B..... | Herold Bros. |
| Holden, L. D..... | The Hollenden. |
| Hubbard, A. T..... | Cowell, Hubbard Co. |
| Harbaugh, A. G. | A. G. Harbaugh & Co. |
| Huntington, Hugh..... | Hugh Huntington & Son. |

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| Hemmeter, John C. | Ship-Chandler. |
| Hartz, Gus. | Proprietor Opera House. |
| Hoffman, Albert H. | The Jacob Hoffman Wagon Co. |
| Hulsemeyer, H. W. | Flour and Feed. |
| Hughes, R. D. | General Superintendent American Express Co. |
| Hirt, J. M. | Grocer. |
| Hilands, William J. | Bonds and Stocks. |
| Harvey, M. W. | Agent Wells, Fargo & Co.'s Express. |
| Hickox, Ralph W. | Office Hickox Building. |
| Hill, J. S. M. | President Forest City Storage Co. |
| Huntington, William R. | Huntington Coal Co. |
| Hausher, George W. | Hausher & Sons. |
| Hayes, Abraham L. | Hayes, Green & Co. |
| Herman, George P. | Grocer. |
| Herig, C. R. | Herig Bros. |
| Ingersoll, Joseph. | Retired. |
| Irvine, T. M. | Investment Broker. |
| Johnson, M. E. | Flour and Feed. |
| Johnson, C. H. | Cigars and Tobacco. |
| Johnson, George J. | Real Estate. |
| Jenks, R. H. | Gray, Jenks & Co. |
| Johns, David W. | Johns & Co. |
| Julier, G. C. | Excelsior Cracker Works. |
| Johnson, Hon. Tom L. | President Brooklyn St. R. R. Co. |
| Joseph, Moritz. | Goldsmith, Joseph, Feiss & Co. |
| Jones, W. S. | Vice President Citizens' Savings & Loan Association. |
| Joseph, Emil. | Attorney. |
| Johnson, W. P. | Cashier Commercial National Bank. |
| Jenman, A. | Brooklyn Post Office. |
| Jopling, Reginald F. | Assistant Manager American Wire Works Co. |
| Kelly, T. A. | Grain and Stock Broker. |
| Krause, George, Jr. | Contracting Agent C., C., & I. R. R. |
| Kundtz, Theodore. | Sewing Machine Cabinet Work. |
| Kingsborough, John. | Inspector and Fish Dealer. |
| Kidder, C. H. | Real Estate. |
| Kinner, J. M. | Railroad and Steamship Broker. |
| Kennedy, J. V. | Forest City Brass Works. |
| Knowles, C. | Harness Manufacturer. |
| King, Julius. | Julius King Optical Co. |
| Kane, S. C. | Contractor. |
| Kelly, A. E. | Commission Merchant. |
| Kilfoyle, John F. | Men's Outfitter. |
| Kent, Oliver G. | Retired. |
| King, H. W. | Secretary King Iron Bridge Co. |
| Kyle, C. | Painter. |
| Lyon, R. T. | Commission Merchant. |
| Leader Printing Co. | Commission Merchant. |
| Lovis, S. C. | Agent Red and White Line Transit Cos. |

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| Lewis, Geo. W..... | Broadway Mills. |
| Levi, Isaac..... | Landesman, Hirscheimer & Co. |
| Lockwood, C. B..... | Lockwood-Taylor Hardware Co. |
| Lamprecht, W. H..... | Banker. |
| Levan, A. B..... | Kinney & Levan. |
| Lindsay, W. I..... | W. I. Lindsay & Co. |
| Lewis, Henry..... | World's Tourist Office. |
| Lawrence, W. H..... | Ohio Farmer. |
| Leggett, M. D..... | M. D. & L. L. Leggett, Patent Attorneys. |
| Lowman, C. E..... | Carriage Manufacturer. |
| Lederer, Sigmund..... | Charles Lederer & Son. |
| Logan, John A..... | |
| Lawton, Lewis C..... | General Agent Mutual Life Insurance Co. |
| Loree, L. F..... | Superintendent Pennsylvania Co. |
| Martin, Daniel..... | D. Martin & Co. |
| Mahler, B..... | B. Mahler & Co. |
| McKinnie, W. J..... | Andrews, Hitchcock & Co. |
| Mather, Samuel..... | Pickands, Mather & Co. |
| Manning, A. R..... | Brooks, Manning & Co. |
| Morison, David..... | Director of Charities. |
| Maher, Thomas..... | Maher & Brayton. |
| McBride, Lee..... | Root & McBride Bros. |
| McLean, D. E..... | President Herrman-McLean Co. |
| Mansfield, J. P..... | Vice President Cleveland Linseed Oil Co. |
| Myers, Daniel..... | Benton, Myers & Co. |
| Moore, Captain J. W..... | Moore, Bartow & Gilchrist. |
| McIntosh, George T..... | McIntosh-Huntington Co. |
| Mather, William G..... | President Cleveland Iron Mining Co. |
| McReynolds, William..... | W. & J. W. McReynolds. |
| Morganthaler, Henry..... | H. Morganthaler & Co. |
| McKean, N. P..... | Richards, McKean & Co. |
| Myer, O. D..... | Dry Goods. |
| Morley, J. H..... | President Cleveland Gas-light & Coke Co. |
| Mulford, S. E..... | Agent New York Life Insurance Co. |
| Muhlhauser, F..... | President Northern Ohio Woolen Mills. |
| Moore, F. K..... | Morgan, Moore & Baine. |
| Mooney, Thomas J..... | Merchant Tailor. |
| Morris, S. C..... | President Ohio Baking Co. |
| Morris, Calvary..... | President Morris Coal Co. |
| Mizer, Conrad..... | Merchant Tailor. |
| Moriarty, James..... | Furniture. |
| McAllister, Colonel Arthur..... | McAllister & Dall. |
| Murray, W. P..... | Pickands, Mather & Co. |
| Moody, C. R..... | Moody & Thomas. |
| McWatters, John C..... | Manager E. R. Hull & Dutton. |
| Mireau, Homer..... | Laundry. |
| Meacham, Levi E..... | County Clerk. |
| McKay, George F..... | Freight Agent L. S. & M. S. R. R. |

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| Moore, Henry R. | General Freight Agent C. C. & S. R. R. |
| McKinstry, James P. | General Manager Cleveland Telephone Co. |
| Moore, Edward W. | Treasurer Dime Savings & Banking Co. |
| Miller, H. D. | With Standard Oil Co. |
| Manning, Thomas F. | Manager Murphy Varnish Co. |
| Morse, B. F. | Inspector of Buildings. |
| Norton, D. Z. | Oglebay, Norton & Co. |
| Newman, T. F. | Manager Cleveland & Buffalo Transportation Co. |
| Newell, C. L. | Newell Bros. Co. |
| Noyes, H. N. | Noyes & Bro. |
| Neal, R. B. | Neal Bros. Ellithorpe. |
| O'Brien, P. C. | P. C. O'Brien & Co. |
| Olmsted, George H. | George H. Olmsted & Co. |
| O'Brien, J. F. | Hatter. |
| Oglebay, E. W. | Oglebay, Norton & Co. |
| Osborne, F. M. | Osborne, Seagar & Co. |
| Orel, E. M. | Strohm & Orel. |
| Palmer, J. H. | Vessel Owner. |
| Press, The Cleveland. | |
| Pears, Henry. | Carlton & Lee. |
| Prindle, H. E. | Agent Star Union Line. |
| Powers, B. F. | Garry Iron & Steel Roofing Co. |
| Prescott, Charles H. | Saginaw Bay Co. |
| Pinkett, Joseph. | Gibbons-Pinkett Co. |
| Pollock, John. | Real Estate. |
| Palmer, C. F. | Palmer & Co. |
| Power, Horace W. | State Agent Travellers' Insurance Co. |
| Perkins, Douglass. | D. & J. Perkins. |
| Payne, Hon. H. B. | Retired. |
| Pope, E. C. | Iron Ore. |
| Prescott, William. | Vice President Cleveland Dryer Co. |
| Perkins, E. R. | President Mercantile National Bank. |
| Peck, W. H. H. | President W. H. H. Peck Co. |
| Perkins, Jacob B. | Wilshire Building. |
| Pope, L. I. | Manager Cleveland Window Shade Co. |
| Pankhurst, John F. | General Manager Globe Iron Works Co. |
| Pennington, B. L. | Lockwood-Taylor Co. |
| Putnam, William F. | General Manager Cleveland Milling Co. |
| Peck, W. D. | Manager New York Biscuit Co. |
| Price, J. R. | Secretary Cleveland Storage Co. |
| Rockefeller, John D. | President Standard Oil Co. |
| Rourke, M. A. | Union Dairy Co. |
| Reese, W. M. | Superintendent Cleveland Burial Case Co. |
| Rees, W. D. | President Republic Iron Co. |
| Rawson, L. O. | Manager National Malleable Castings Co. |
| Raymond, S. A. | Agent A. Stone's Estate. |
| Rhodes, R. R. | President People's Savings & Loan Association. |
| Rainey, William J. | President Rainey Bank Coal & Coke Co. |

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|-------------------------|--|
| Robinson, F. L. | Robinson Bros. |
| Rockefeller, Frank | Vice President Standard Oil Co. |
| Rauch, Charles | President Rauch & Lang Carriage Co. |
| Rehark, Victor A. | J. J. Pitts & Co. |
| Rouse, G. W. | Livery. |
| Rudd, William C. | President Chandler & Rudd Co. |
| Riblet, C. F. | Livery. |
| Robison, Frank De H. | President Cleveland City R. R. Co. |
| Radcliffe, W. K. | Radcliffe & Kelly. |
| Raming, John C., Jr. | Merchandise Broker. |
| Russell, L. A. | Attorney. |
| Ross, George K. | Burgess & Ross. |
| Richman, N. G. | Clothing. |
| Smith, John B. | Malster. |
| Short, George W. | President Excelsior Iron Works. |
| Stearns, C. W. | Manager Union Stone Co. |
| Smith, S. C. | Smith & Curtiss. |
| Strong, S. M. | Strong, Cobb & Co. |
| Shurmer, D. | Scofield, Shurmer & Teagle. |
| Stephens, H. A. | Stephens & Widlar. |
| Scott, Captain W. B. | Scott, W. B. & Son. |
| Smith, Patrick | Ship Contractor. |
| Smithnight, Col. L. | Druggist. |
| Spencer, P. M. | Cashier Cleveland National Bank. |
| Stafford, J. R. | Soap Manufacturer. |
| Southworth, W. P. & Co. | Wholesale and Retail Grocers. |
| Scheuer, S. E. | Scheuer Bros. |
| Shipherd, John J. | Charles H. Potter & Co. |
| Smith, C. H. | Flour and Feed. |
| Striebinger, J. J. | Flour, Feed and Commission. |
| Stafford, O. M. | Sec'y and Treas. Broadway Savings & Loan Co. |
| Severance, S. L. | Cashier Euclid Avenue National Bank. |
| Schlather, Leonard | President Schlather Brewing Co. |
| Steinfeld, J. | Clothier. |
| Steinfeld, A. J. | Manager Co-Operative Clothing Co. |
| Selzer, C. A. | Fine Gas and Electric Fixtures. |
| Sickels, Sheldon | Secretary Union Steel Screw Co. |
| Silverthorn, W. H. | Secretary Paige Car Wheel Co. |
| Seymour, Belden, Jr. | Real Estate. |
| Stone, Arthur L. | Secretary Nicola & Stone Lumber Co. |
| Sloss, Sol | Manager Sloss Marblehead Lime Co. |
| Stevenson, R. B. | Manager Cleveland U. S. Baking Co. |
| Spencer, Frank O. | Spencer Bros. |
| Sherburne, Harry | Sherburne & Noonan. |
| Savage, J. B. | Economy Printing House. |
| Swasey, Ambrose | Warner & Swasey. |
| Semon, Charles | Leaf Tobacco. |
| Sigler, W. R. | Sigler Bros. |

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| Stone, I. N..... | Stone Bros. |
| Sawyer, E. D..... | Iron Mines. |
| Simmons, Thomas..... | Builder and Contractor. |
| Strauss, H. M..... | H. M. Strauss & Co. |
| Saeger, E..... | Osborn, Saeger & Co. |
| Shackleton, P..... | Shackleton Bros. |
| Smith, Matthew..... | Teas, Coffees, Etc. |
| Sykora, J. W..... | Attorney. |
| Sullivan, J. J..... | Cashier Central National Bank. |
| Salter, W. J..... | Union Elevator Co. |
| Schmitt, Andrew..... | Flour and Feed. |
| Stein, B..... | Caterer. |
| Seldon, Charles A..... | Real Estate. |
| Stone, N. O..... | Boots and Shoes. |
| Stoppel, Omar..... | Dealer in Malt and Hops. |
| Taylor, N. W..... | President Cleveland Paper Co. |
| Teagle, John..... | Scofield, Shurmer & Teagle. |
| Tyler, W. S..... | President W. S. Tyler Wire Works Co. |
| Townsend, Oscar..... | General Manager C. L. & W. R. R. Co. |
| Townsend, Fred J..... | Manager Knickerbocker Ice Co. |
| Treadway, A. R..... | Manager Peck, Stow & Wilcox Co. |
| Taylor, V. C..... | Real Estate. |
| Trask, J. C..... | General Agent N. Western Mutual Life Insurance Co. |
| Tillinghast, C. E..... | Manager Equitable Life Insurance Society. |
| Truscott, F. W..... | Secretary Cleveland Elevator Co. |
| Townsend, Hon. Amos..... | William Edwards & Co. |
| Towsen, E. H..... | Towsen & Gimbert. |
| Teachout, A. R..... | A. Teachout & Co. |
| Tunte, Henry..... | Flour Broker. |
| Tidd, Henry A..... | E. B. Tidd & Co. |
| Turner, Joshua..... | Joseph Turner & Son Manufacturing Co. |
| Thrasher, S. P..... | Commission Merchant. |
| Upson, A. S..... | President Upson Nut Co. |
| Van Tine, W. H., Jr..... | Real Estate. |
| Van Cleve, H. B..... | President Van Cleve Glass Co. |
| Van Dorn, J. H..... | President Van Dorn Iron Works Co. |
| Van Epps, John S..... | Delaware & Hudson Canal Co. |
| Van Tassel, Col. A. T..... | A. T. Van Tassel & Co. |
| Wenham, A. A..... | A. J. Wenham's Sons. |
| Wiener, A..... | Wiener Bros. |
| Webb, H. J..... | Webb, H. J. & Co. |
| White, Thomas H..... | President White Sewing Machine Co. |
| Wesley, Charles T..... | Proprietor Weddell House. |
| Warner, Captain George..... | Warner & Co. |
| Williams, A. B..... | Reynolds & Williams. |
| Wetherell, W. B..... | Agent Erie Despatch. |
| Watterson, M. G..... | President Dime Savings & Banking Co. |
| Wilson, Captain Thomas..... | Vice President Central National Bank. |

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|----------------------------|--|
| Willard, George G..... | Commission Merchant. |
| Winslow, R. K..... | Vessel Owner. |
| Whitacre, W. W..... | Agent Empire Line. |
| Wright, E. P..... | Superintendent Western Union Telegraph Co. |
| Worthington, George H..... | Secretary Cleveland Stone Co. |
| Wilson, Thomas H..... | Cashier First National Bank. |
| Wood, Thomas..... | Wood Bros. |
| Welch, George P..... | Sterling, Welch & Co. |
| Whitney, Edwin E..... | Whitney, Bowen & Co. |
| Woltman, William..... | Woltman & Korell. |
| Wright, A. J..... | President Reliance Gauge Co. |
| Weideman, J. C..... | President Weideman Co. |
| White, W. J..... | Chewing Gum Manufacturer. |
| Ward, P. W..... | Ticket Broker. |
| Wuest, John..... | Confectioner. |
| Wade, J. H., Jr..... | Capitalist. |
| Wertheimer, Daniel S..... | Advertising Agent. |
| Warner, J. E..... | Proprietor Home Laundry. |
| Young, Otis E..... | Secretary O. Young Coal Co. |
| Zipp, John..... | Zipp & Schorndorfer |
| Zerbe, J. B..... | President Ohio & Pennsylvania Coal Co. |
| Zucker, Peter..... | Attorney. |

CLEVELAND BOARD OF INDUSTRY AND IMPROVEMENT.

This is a representative body of the best citizens of Cleveland in commercial, manufacturing and mercantile pursuits. Its organization five years ago grew out of a call for the appointment of a committee of one hundred citizens to further Cleveland's manufacturing interests. Other places were offering inducements of all kinds to gain new enterprises and the call for an organization here to take up similar work met with a ready response. A systematic plan of action was outlined and correspondence taken up with the promoters of various new enterprises, as well as concerns already in operation that were looking to enlargement of their operations through more advantageous locations. The new body accomplished a great deal in this way but its efforts did not end with work of this kind. The organization has been

maintained, and in river and harbor work, municipal legislation and in fact all public matters an expression of opinion from the Board of Industry carries great weight.

Mr. F. Muhlhauser is president of the board, Hon. C. C. Burnett vice-president and Mr. W. M. Day secretary and treasurer. The various committees of the board are:

Executive.—F. Muhlhauser, ex officio; Hon. Amos Townsend, H. R. Groff, Gen. James Barnett, S. M. Strong, A. Wiener, D. P. Eells, W. M. Day, W. J. Akers, Joseph Black, Hon. B. D. Babcock, D. A. Dangler, Lee McBride, W. W. Armstrong, William Edwards, Hon. Tom L. Johnson.

Finance.—Kaufman Hays, J. J. Sullivan, H. S. Whittlesey, H. P. McIntosh, F. W. Pelton.

Manufactures.—C. W. Bingham, J. S. Dickle, H. W. Avery, J. W. Britton, J. B. Perkins, C. A. Grasselli, J. F. Pankhurst.

Taxation.—Hon. T. E. Burton, Hon. Geo. W. Gardner, Robert Blee, C. C. Burnett, Gen. M. D. Leggett.

Municipal Legislation.—E. J. Blandin, David Morison, Andrew Squire, H. Q. Sargent, H. D. Goulder.

River and Harbor.—John Holland, Capt. Thomas Wilson, M. A. Bradley, George H. Warmington, George H. Ely.

Sewer System.—W. P. Rice, C. G. Force, P. M. Hitchcock, H. M. Claflen, H. D. Coffinberry.

CLEVELAND BUILDERS' EXCHANGE.

The Cleveland organization of builders, merchants and manufacturers engaged in building trade lines is now one of the strongest organizations of its kind in the country. Its main object is to provide a central meeting place for members and to take action on all matters affecting in a general way the trades which it represents. The membership, numbering about 140, includes manufacturers and dealers in building material, as well as the different contractors engaged in iron work, masonry, carpentry, etc. The Exchange occupies several rooms in the Arcade building, Superior street entrance. Regular meetings of the general body are held only once every two weeks on Monday evening, but the place is at all times a scene of business activity. Contractors

and dealers make their appointments so as to cover certain hours of the day at the rooms, and representatives of dealers in leading lines, such as stone, brick, lumber, hardware, window glass, etc., are in attendance almost constantly. Notices from architects, who are given full privileges of the Exchange, are posted and information is given to members regarding new work upon which proposals are solicited. The membership fee is \$25 and the annual dues \$20 a year.

Within the membership of the Exchange are included, of course, members of organizations maintained by the mason contractors, master painters, carpenter contractors and master plumbers. These associations use the Exchange rooms for meetings, at which matters pertaining to their particular lines of business are discussed.

THE MERCHANTS' AND MANUFACTURERS' EX- CHANGE COMPANY.

Although the name of this organization would suggest that it is a corporation run for profit, such is not the case. It is a local association of wholesale merchants and manufacturers, mainly merchants known as jobbers, who are organized for an interchange of experience that results in mutual advantage. They are incorporated for protection purposes and have only a nominal capital. This body, now in its sixth year, was organized on June 10, 1887. The membership in September, 1892, was 130. Its work is similar to that conducted by the mercantile agencies, although much more effective on account of its local character. A report is desired, for instance, by one of these jobbers regarding a new customer. A blank is sent immediately to members of the company or association in the city and in a few hours a return is made by every jobber who has had dealings with the new customer. But the work does not end here. Various advantages are derived in other ways from meetings and

discussions. Very often a dealer who has a number of creditors in the association is found to be in an unsatisfactory condition financially. His affairs are submitted to the association, interests of the creditors are pooled and through extensions and an adjustment of the business involved the dealer, as well as his creditors, is benefited by a continuance of the business. Mr. Geo. H. Burrows is secretary of this body and its offices are in Rooms 12 and 13, No. 130 Water street. Other officers are: H. R. Groff, president; H. A. Bishop, vice-president; Geo. W. Kinney, treasurer; H. R. Groff, H. A. Bishop, Geo. W. Kinney, C. W. Bingham and S. M. Strong, members of executive committee.

This association co-operates with twenty similar associations in other leading cities of the country. Among them are the Merchants' & Manufacturers' Exchange, New York; Merchants' Association, New York City; Boston Merchants' Association, Boston; Toledo Commercial Exchange, Toledo; Associated Wholesale Grocers, St. Louis; Credit Association, New Orleans; Lumber Mercantile Association, Chicago; Mercantile Protective Bureau, Pittsburg; Consolidated Commercial Agency, Cincinnati; Credit Guarantee Company, Minneapolis; Brock's Credit Guide, Philadelphia and Chicago; National Furniture Association, Chicago; Furn Mercantile Agency, Cincinnati; Jobbers' Association, Utica, N. Y.; J. W. Ely Hardware Blue Book, Chicago and New York; J. B. Sanburn Coal Agency, Chicago; New York Jewelers' Board, New York; American Shoe and Leather Association, Philadelphia and Boston; Jewelers' Mercantile Agency, Limited, Chicago, Ill. Not all of these associations and agencies are organized after the system in vogue in Cleveland; neither are they as far reaching in their work, but the end sought is largely the same.

REAL ESTATE BOARD.

An organization of real estate dealers was incorporated on June 25, 1892, and there was included in its membership almost immediately all of the leading brokers in this line in the city. Its objects are to devise, encourage and foster schemes of public improvement and benefit to the city at large; to stimulate greater activity in real estate by joint effort in effecting sales and transactions rather than by scattered individual work; to establish and maintain the calling of the real estate broker in a position of dignity and to initiate measures to place it upon a foundation of influence and permanence; to secure uniform rates of brokerage in real estate transactions; to discourage and prevent unfair division of the brokers' commissions by persons not in the business who have no real claim for a division of such commissions.

The officers of the board are: D. R. Taylor, president; J. G. W. Cowles, vice-president; C. E. Ferrell, Secretary; D. R. Taylor, H. P. McIntosh, W. H. Van Tine, Jr., J. G. W. Cowles, V. C. Taylor, T. A. Selover, M. S. Hogan and C. H. Kidder, members of the board of directors.

WHOLESALE GROCERS' ASSOCIATION.

This association is altogether similar to the organization of hardware jobbers. Attention is given to prices in special lines where serious abuses have crept into the trade. Frequent meetings are held and they are characterized by discussion tending toward a higher standard of business methods. The officers of the Wholesale Grocers' Association are H. A. Bishop, president; Geo. K. Ross, vice-president; A. A. Wenham, secretary and treasurer.

HARDWARE JOBBERS' ASSOCIATION.

Cleveland's extensive hardware jobbing houses have for seven years past been united in an association that has under consideration at all times matters pertaining to the advancement of this line of trade in the city. Prices are not dealt with. The principal aims of the association are to correct abuses and maintain a uniformity of methods. The regulation of work assigned to a large force of traveling men in this branch of business and the correction of any discrimination in railway freight rates are also leading aims of this body. The officers of the association are George Deming, president; H. S. Blossom, vice-president; W. H. Coles, secretary.

XIII.—MISCELLANEOUS POINTS OF INTEREST.

PUBLIC SCHOOLS, ORGANIZATION AND STATISTICS—POST-OFFICE FIGURES—STREET RAILWAYS—INTERNAL REVENUE COLLECTIONS.

VALUE OF CLEVELAND PUBLIC SCHOOL PROPERTY AUGUST 1, 1891.

| | |
|---------------------|-------------|
| Land..... | \$ 843,496 |
| Buildings | 2,128,428 |
| Furniture, etc..... | 430,235 |
| Total..... | \$3,402,159 |

Cleveland is spending more than a million dollars a year for the education of a few less than 40,000 pupils in its public schools. On the present basis of expenditure the average expense per year of providing instruction for pupils in the grammar schools is about \$12, and for high school pupils it is \$30. The average cost for all pupils is about \$18. The above figures, showing value of public school property in the city, were compiled from inventory made at the close of the school year in 1891, and are undoubtedly conservative, as they were prepared to be used as a basis for the purchase of school bonds. Reports of the Board of Education for ten years, ending with August, 1890, show a total expenditure of \$7,105,268.81 for school purposes. Of this amount, \$4,448,617.01 went for salaries, \$1,230,673.01 for new buildings, \$185,346.69 for building sites, and \$1,240,632.10 for miscellaneous purposes.

In 1846, the first high school in the United States was

established here. There are now two such schools, with a normal training school for the preparation of teachers, fifty-two of the finest school buildings that are to be found in this country, and a force of teachers numbering 803 on Sept. 1, 1892.

In March, 1892, the state legislature passed a reorganization act for the government of the public schools and matters pertaining thereto. It provides for the election at large of a director of schools and a school council of seven members, also elected at large. The director has all executive control and all appointments except teachers, who are appointed by the superintendent of instruction. This official is, however, appointed by the director. All legislation on school questions is in the hands of the school council. The city auditor, under this act, becomes auditor of the school department. The schools are now being conducted under this law, from which great benefits are expected.

BOARD OF EDUCATION.

EXECUTIVE.

| | |
|----------------------------|---------------------------|
| HON. H. Q. SARGENT..... | School Director. |
| CHAS. F. LEACH | Secretary. |
| HON. ANDREW S. DRAPER..... | Supt. of Instruction. |
| JAY D. STAY..... | Assistant Superintendent. |

Offices, 190 Euclid Avenue.

ACCOUNTS.

| | |
|-------------------------|-------------|
| F. C. BANGS..... | Auditor. |
| CHAS. L. MOSHER, }..... | Assistants. |
| HARVEY THOMAS, } | |

Offices, No. 213 City Hall.

LEGISLATIVE—SCHOOL COUNCIL.

| | |
|--------------------------|-----------------|
| S. S. FORD..... | President. |
| JOHN F. GOLDENBOGEN..... | Clerk. |
| WM. BACKUS, JR., | M. R. DAYKIN, |
| THOMAS BOUTALL, | MARTIN HOUSE, |
| W. D. BUSS, | F. C. McMILLIN. |

PUBLIC SCHOOL EXPENDITURES FOR TEN YEARS PAST.

(Official Reports Board of Education.)

| YEARS. | Salaries. | New Buildings. | Sites. | Miscellaneous. | Total. |
|-------------|----------------|----------------|--------------|----------------|----------------|
| 1881-82 | \$ 338,212 70 | \$ 67,802 43 | \$ 9,437 80 | \$ 39,825 62 | \$ 455,278 55 |
| 1882-83 | 343,261 65 | 72,966 32 | 34,199 08 | 41,955 94 | 492,382 99 |
| 1883-84 | 359,784 98 | 225,167 94 | 17,768 88 | 79,617 85 | 682,339 15 |
| 1884-85 | 386,496 16 | 202,143 63 | 18,324 10 | 88,441 45 | 700,405 34 |
| 1885-86 | 425,598 82 | 16,164 24 | 6,350 00 | 263,609 58 | 700,622 14 |
| 1886-87 | 455,595 53 | 27,716 00 | 25,468 46 | 101,536 18 | 610,316 17 |
| 1887-88 | 479,977 14 | 170,064 78 | 20,208 03 | 137,185 44 | 807,435 39 |
| 1888-89 | 518,882 82 | 14,891 52 | 19,580 95 | 149,430 21 | 702,785 00 |
| 1889-90 | 540,870 20 | 180,240 70 | 16,400 12 | 158,214 45 | 895,725 47 |
| 1890-91 | 589,938 01 | 254,515 45 | 22,609 77 | 190,915 38 | 1,057,978 61 |
| Totals..... | \$4,448,617 01 | \$1,230,673 01 | \$185,316 69 | \$1,240,632 10 | \$7,105,268 81 |

ATTENDANCE IN PUBLIC AND PRIVATE SCHOOLS FOR TEN YEARS PAST.

(Official Reports Board of Education.)

| YEARS. | Public Schools. | | Private and Church Schools. | | Total number pupils receiving school instruction. |
|---------|-----------------|---------|-----------------------------|---------|---|
| | Male. | Female. | Male. | Female. | |
| 1881-82 | 11,971 | 11,936 | 5,366 | 6,658 | 35,990 |
| 1882-83 | 11,984 | 11,713 | 5,973 | 5,993 | 35,663 |
| 1883-84 | 12,965 | 12,670 | 5,870 | 5,859 | 37,384 |
| 1884-85 | 13,842 | 12,858 | 6,253 | 6,276 | 38,729 |
| 1885-86 | 13,843 | 13,619 | 6,768 | 6,451 | 40,681 |
| 1886-87 | 13,713 | 13,711 | 7,151 | 6,345 | 41,420 |
| 1887-88 | 15,623 | 14,389 | 6,951 | 7,062 | 43,425 |
| 1888-89 | 15,981 | 15,792 | 7,599 | 7,728 | 47,100 |
| 1889-90 | 16,723 | 16,734 | 8,695 | 8,391 | 50,543 |
| 1890-91 | 17,767 | 17,867 | 8,747 | 7,817 | 53,198 |

CLEVELAND POST OFFICE.

RECEIPTS AND EXPENDITURES, EXECUTIVE DIVISION, YEAR ENDING JUNE 30, 1892.

RECEIPTS.

| | |
|-------------------|---------------|
| Postage..... | \$ 562,290 64 |
| Waste paper | 153 71 |
| Box rent..... | 1,884 02 |
| Deposits..... | 80,670 55 |
| | |
| | \$ 644,998.92 |

EXPENDITURES.

| | |
|---|--------------|
| Postmaster | \$ 5,000 00 |
| Special delivery | 2,726 00 |
| General expenses | 1,926 57 |
| Office employees..... | 74,802 31 |
| Railway postal clerks..... | 234,586 94 |
| Miscellaneous express railway transportation..... | 6,361 75 |
| Letter carrier salaries..... | 103,792 14 |
| Letter carrier incidental expenses..... | 4,677 04 |
| Paid Assistant Treasurer United States..... | 221,112 16 |
| | \$644,998 92 |

MONEY ORDER DEPARTMENT, YEAR ENDING JUNE 30, 1892.

| | Number. | Amount. |
|---|---------|----------------|
| Money orders and postal notes issued..... | 69,012 | 586,194 85 |
| Money orders and postal notes paid..... | 177,865 | 1,096,764 50 |
| Certificates of deposit issued..... | 17,485 | 1,251,197 97 |
| Drafts on postmaster at New York..... | ..... | 38,000 00 |
| Drafts on postmaster at Cleveland..... | ..... | 2,109 00 |
| Remitted to postmaster at New York..... | ..... | 415,000 |
| Remitted to postmaster at Cleveland..... | ..... | 51,992 00 |
| Total..... | 264,362 | \$3,441,258 31 |

COMPARATIVE STATEMENT OF MAILED HANDLED, MAILING DIVISION, FOR THE YEARS ENDING JUNE 30, 1891 AND 1892.

| | 1891. | 1892. | Increase. |
|-------------------------------|------------|------------|-----------|
| First Class,..... | 39,154,426 | 45,217,509 | 6,063,083 |
| Second Class,..... | 8,079,236 | 9,488,516 | 1,409,280 |
| Third and Fourth Class, | 10,186,012 | 11,293,556 | 1,107,544 |
| Specials,..... | 10,826 | 15,922 | 5,096 |
| Total, all Classes,..... | 57,419,674 | 65,999,581 | 8,578,907 |

WHOLE NUMBER OF EMPLOYES.

| | |
|---------------------------|-----|
| Executive Division,..... | 12 |
| Mailing " | 52 |
| Register " | 9 |
| Money order " | 6 |
| City delivery " | 6 |
| Inquiry " | 2 |
| Six stations,..... | 10 |
| Letter carriers,..... | 123 |
| Substitute carriers,..... | 20 |
| Stamp agencies,..... | 14 |
| Total,..... | 254 |

MILEAGE OF CLEVELAND STREET RAILWAYS,
1892.

| ROADS. | Double Track, Miles. | Single Track, Miles. | Total Miles. |
|--|-------------------------|-------------------------|--------------|
| Broadway and Newburg with Branches..... | 12.90 | ..... | 25.80 |
| Brooklyn Line with Branches..... | 11.44 | ..... | 22.88 |
| South Side Line with Branches..... | 7.03 | ..... | 14.06 |
| East Cleveland Railroad Co., Main Line..... | 5.50 | ..... | 11.00 |
| East Cleveland Railroad Co., Cedar Avenue Line..... | 4.50 | ..... | 9.00 |
| East Cleveland Railroad Co., Central and Quincy Line..... | 6.42 | ..... | 12.84 |
| East Cleveland Railroad Co., Wade Park Avenue Line..... | 6.55 | ..... | 13.10 |
| Glenville Line..... | 2.27 | ..... | 4.54 |
| Kinsman Street Line..... | ..... | 1.91 | 1.91 |
| Payne Avenue Line..... | 5.06 | ..... | 10.12 |
| Superior Street Line..... | 5.06 | ..... | 10.12 |
| St. Clair Street Line..... | 3.85 | ..... | 7.70 |
| Woodland Avenue and West Side, Main Line West Side..... | 2.94 | 1.04 | 6.92 |
| Woodland Avenue and West Side, Main Line East Side..... | 3.49 | .64 | 7.52 |
| Woodland Avenue and West Side, Detroit Branch..... | 3.98 | ..... | 7.96 |
| Woodland Avenue and West Side, Pearl Street Branch..... | .55 | ..... | 1.10 |
| Woodland Avenue and West Side, Fulton Street Branch..... | .20 | .41 | .81 |
| Woodland Avenue and West Side, Lorain Street Branch..... | 2.67 | ..... | 5.34 |
| Woodland Avenue and West Side, Franklin Avenue Branch..... | ..... | 1.58 | 1.58 |
| | 84.41 | 5.58 | 174.40 |

INTERNAL REVENUE COLLECTIONS IN THE EIGHTEENTH DISTRICT OF OHIO (CLEVELAND),
YEAR ENDING JUNE 30, 1892.

| MONTHS. | Collection on lists. | Fermented Liquors. | Distilled Spirits. | Cigars and Cigarettes. | Snuff. | Tobacco. | Special Tax. | Oleomargarine. | Total. |
|--------------------|----------------------|--------------------|--------------------|------------------------|----------|--------------|---------------|----------------|-----------------|
| July, 1891..... | \$ 38.20 | \$ 57,000.38 | \$ 3,250.80 | \$ 25,874.25 | \$ 2.70 | \$ 2,041.41 | \$ 59,066.86 | \$ 1,645.32 | \$ 148,947.22 |
| August, "..... | 496.12 | 54,847.91 | 3,065.40 | 25,518.75 | 1,673.97 | 5,389.31 | 2,238.82 | 93,232.98 | |
| September, "..... | 202.09 | 53,471.04 | 3,141.90 | 24,792.06 | 2,559.03 | 6,411.92 | 3,750.24 | 94,328.28 | |
| October, "..... | 582.84 | 40,839.25 | 3,065.40 | 24,303.24 | 1.80 | 2,457.96 | 4,687.17 | 3,728.18 | 79,665.84 |
| November, "..... | 284.83 | 34,762.00 | 3,667.60 | 21,916.60 | 3.00 | 1,208.58 | 4,576.73 | 3,359.50 | 69,768.84 |
| December, "..... | 109.32 | 38,792.67 | 3,294.90 | 22,667.72 | 2,014.05 | 2,926.67 | 3,554.60 | 73,359.93 | |
| January, 1892..... | 700.11 | 25,388.04 | 4,355.40 | 19,420.67 | 18.06 | 1,495.08 | 1,458.25 | 2,923.82 | 55,729.43 |
| February, "..... | 421.24 | 30,479.24 | 3,074.40 | 19,646.79 | 1,850.13 | 1,511.39 | 3,578.60 | 60,561.79 | |
| March, "..... | 322.97 | 38,063.78 | 2,303.10 | 21,567.12 | 1.20 | 2,116.83 | 1,491.67 | 4,446.52 | 70,313.19 |
| April, "..... | 139.21 | 42,887.65 | 3,444.30 | 23,227.62 | 4.20 | 2,064.36 | 1,311.33 | 3,480.74 | 76,559.41 |
| May, "..... | 45.80 | 49,468.10 | 3,374.10 | 22,353.81 | ..... | 1,490.79 | 1,014.88 | 2,604.44 | 80,351.92 |
| June, "..... | 55.94 | 64,848.07 | 3,667.20 | 24,166.23 | ..... | 1,722.15 | 88,399.94 | 714.50 | 183,514.03 |
| Grand Totals..... | \$ 5,598.67 | \$ 530,848.13 | \$ 39,604.50 | \$ 275,454.86 | \$ 30.96 | \$ 22,694.34 | \$ 178,276.12 | \$ 36,025.28 | \$ 1,086,332.86 |

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